SOME ACCOUNT

OF THE

DISEASES

THAT PREVAILED IN TWO VOYAGES TO THE EAST-INDIES

IN THE

Carnatic East-Indiaman,

IN A

SERIES OF LETTERS.

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OF THE

DISEASES

THAT PREVAILED IN TWO VOYAGES TO THE EAST INDIES,

IN THE

Carnatic East-Indiaman,

DURING THE YEARS

1793, 1794, 1795, 1796, 1797, & 1798;

TOGETHER WITH

OBSERVATIONS AND MEDICAL REMARKS,

IN A SERIES OF

LETTERS

TO

JOHN HUNTER, M.D. F.R.S.

BY

JOHN MILNE,

FORMERLY SURGEON OF THE CARNATIC, NOW SURGEON ON THE BOMBAY ESTABLISHMENT.

"Nothing extenuate,
"Nor set down aught in Malice."

"Si quid novisti rectius istis,
"Candidus imperti; si non, his utere mecum."

London:

PRINTED BY E. SPRAGG, BOW-STREET, COVENT-GARDEN.

Sold by R. Phillips, St. Paul's Church-Yard; T. Cox, St. Thomas-Street, Borough; T. Greenhill, Gracechurch-Street; and J. Callow, Crown-Court, Soho.

1803.

ADVERTISEMENT.

THE following Letters are writen, and publiſhed from the beſt of motives, a deſire to afford uſeful information to ſuch as may be in ſituations ſimilar to thoſe in which the author has been, that is, to the ſurgeons and ſurgeons-mates of the ſhips belonging to the Eaſt-India Company. There are many thouſand ſailors in the daily employ of the Eaſt-India Company; the recruits ſent to the army in India, and Paſſengers, on board their ſhips are often more in number than the ſeamen; and the voyage is one of

the longeſt that is undertaken from this country; whatever, therefore, in ſuch circumſtances, can contribute to the preſervation of the health and lives of our fellow creatures, muſt deſerve our ſerious attention. The abilities, zeal, and diligence, which mark the authors conduct upon every occurrence that affected the health of thoſe committed to his care, cannot fail to furniſh moſt valuable inſtruction, and ſet an example that well deſerves to be followed.

Had the author been in England to have ſuperintended the publication of theſe letters, it is probable there are a few things advanced in them which he would have choſen to expreſs in terms ſomewhat more qualified; conſidering that his experience, though large in ſome diſeaſes, is limited in others. But it was not

thought neceſſary to alter the manuſcript on this account, becauſe the extent of the experience upon which he founds his medical opinions is every where obvious.

Some apology may, perhaps, be deemed neceſſary for the freedom with which he has expoſed the errors of others; to ſuch as ſhall think this requiſite, no better excuſe can be offered than, that he has every where animadverted upon the miſtakes committed by himſelf, with even leſs reſerve than upon the errors of others.

LONDON,
MARCH 14, 1803.

LETTER I.

Account of Diſeaſes prevalent in the firſt Voyage.

SIR,

I HAVE been induced from ſeveral conſiderations to record the following circumſtances, which from being a party not the leaſt engaged, have in a very forcible degree impreſſed my mind. I conceive, in doing this, that I may be uſeful to a very valuable part of the community, whoſe ſufferings and meritorious conduct require that every means ſhould be employed for their relief, and to render them as comfortable as the nature of their ſituation will admit: and I ſhall be happy if in this inſtance I ſhould in any degree contribute towards ſuch an important purpoſe.

In endeavouring to ſtate the occurrences with candour which are here related, I have,

consistent with the object of your inquiry, not attempted to excuse any part of my own, nor the conduct of any one who may be occasionally taken notice of, as it is by those means only that the various scenes of like distress are in future to be palliated.

I have taken the liberty of addressing this paper (narrative I may rather call it) to you, as the situation which you fill is more immediately connected with the department that hath given rise to the subject of the detail, and, moreover, from the very high opinion which I have been led to entertain of your humanity, and exertions to promote the general welfare.

Towards the latter end of the year 1793, upon my first becoming a candidate for a place of public trust, I was appointed surgeon's mate of the honourable Company's ship Carnatic.— The contracted state of my finances obliged me almost immediately after my examination to join the ship, which lay at that time opposite to Gravesend. I found, notwithstanding it is unusal for any of the medical gentlemen who are appointed to the different ships to be ordered on board until the time of sailing, that my presence was very neces-

ſary, and more wanted indeed than at many other periods of the voyage. There was, it is true, a gentleman who occaſionally viſited the ſhips belonging to the Company during their ſtay there; but, with a fleet of eight or ten ſail to look after, it is hardly poſſible that he could pay the neceſſary attention to all who might happen to be indiſpoſed. During the month that I remained on board here, the ſhip was taking in her cargo, ſtores &c.; and the people were employed in ſeveral other laborious jobs, which expoſed them not a little to many ſerious accidents: hurts, therefore, were frequent; and, from the uſual effects of an inclement ſeaſon and habits of drunkenneſs, many had ſlight attacks of fevers, peripneumonic and catarrhal affections. Amongſt men alſo daily coming from the ſhore, and by the common practice of admitting women of the town on board, venereal complaints were very common—ſo that during this time I found ſufficient employment.

About the middle of December the ſhip's company were paid there bounty and two months' advance; and immediately afterwards we ſailed from Graveſend, having on board many poor wretches very ill calculated to go an India voyage. Before the ſhip left the

river, ſeveral men who had received their bounty and advance contrived to make their eſcape—a practice to common on board the company's ſhips, that many live entirely by that ſpecies of fraud. Nothing further occurred worthy of remark in this place, till the ſhip's arrival at Portſmouth, about the latter end of the month.

Before we left Graveſend, upon examining our medicine and drug cheſts, we found that many abſolutely neceſſary articles which were indented for, had been neglected to be packed up, ſo that the ſurgeon was under the neceſſity of writing from hence to London, to requeſt that the gentleman who had the care of providing our ſtock of medicines would ſupply this material deficiency. About a week afterwards they were ſent, with an excuſe for the overſight. We had not been long at Portſmouth before many of our people were ſeized with ſevere attacks of fever, ſuppoſed nervous, which carried off two men, and reduced three others to ſuch a weak ſtate, that they were, at their own requeſt diſcharged, as were alſo ſome of thoſe brought from Graveſend, who were now found totally unfit for the duty of a ſhip. The weather was at this time extremely cold, our

gun-deck was often washed, and our guns were always kept run out with half ports shipped, which were but very indifferently calculated to defend those people who slept upon the gun-deck from the inclemency of the season; and it now appears to me, that it was from these causes alone (intense cold and moisture) that the great degree of malignancy in those diseases originated; for none of the midshipmen, quarter-masters, or recruits (of the last to the number of forty), who slept on the orlop-deck, where they were warm and well sheltered, had the smallest indisposition: and further towards the latter end of March, when the weather began to get more mild, these complaints entirely disappeared, and I observed that they were chiefly men of rather a spare habit of body, who were consequently more liable to be acted upon by cold, and those indifferently provided with cloathing, who suffered in the greatest degree. Almost all who were taken ill were allowed to remain in their births upon the gun-deck. About this time a sick birth was erected on the larboard side of the ship; but I am now persuaded, although at the time it did not so forcibly occur to me, that it was placed in the worst part of the ship, considering the nature of the prevailing disease; a few, however,

in confequence of the intolerable noife around them during the day, of their own accord got their meffmates to remove their hammocks to the orlop-deck, where they all did well, which induced them to fleep there during the remainder of the cold weather. I remarked, alfo, that the men who died, and thofe whofe recovery, in confequence of their fevere illnefs, was fo tedious, all lay clofe forward on the larboard fide of the fhip. The reafon which I affign for this part being more affected than any other, is, that, during the time of our having the greateft number on the fick lift, the prevailing winds being from the S.W., the fhip in fwinging to this quarter rode head to the wind by her ftarboard cable, which neceffarily brought the larboard-bow to be more expofed to the wind and occafional rain which fell. So intenfe was the cold at one time, and fo powerful in the production of difeafe and its effects on thofe already fick, that one old man loft two of his toes, which mortified and dropped off during his illnefs. The gun-deck, after wafhing, was feldom dry in lefs than twenty-four hours; and from our galley being placed upon the upper deck, it could confequently in no refpect contribute towards rendering it healthy, nor afford the leaft degree of warmth

to a place fo much expofed. I muft here again mention, that, foon after we got round to Portfmouth, feveral of our men found means to make their efcape from the fhip.

Upon the approach of more moderate weather, towards the latter end of March, thofe fevers which had been fo prevalent entirely difappeared. The weather, however, became now fomewhat irregular, being in the forenoon warm, and towards night rather cold and chilly. Some cafes of eryfipelas occurred at this time; and catarrhal complaints, in confequence of this difpofition of the weather, became very frequent, almoft all yielding to repeated emetics with an opiate at night.

About the beginning of May, at the time of our leaving England, the feafon was very mild and pleafant, and the fhip's-crew were now in perfect health, excepting a few venereal complaints, which are always more or lefs common after leaving a port where women are to be procured. When we failed, our fhip's company amounted to one hundred and thirty-fix men, and we had on board, befides thofe belonging to the fhip, about forty-five paffengers and military recruits for the eftablifhment of Madras.

We enjoyed an uninterrupted ſtate of good health until the ſhip reached the Cape of Good Hope, which we paſſed in the depth of winter. Here ſeveral men were again affected with ſlight feveriſh attacks, which, however, proved of little conſequence. Our commander, ever ſtudious to preſerve to his utmoſt the health and comfort of his ſhip's company, now ordered a warm breakfaſt for the people, compoſed of flour boiled to the conſiſtence of thick gruel, with the addition of molaſſes and ſpirits, which to men who have been for four hours upon a cold, and ſometimes wet deck, is not only a very acceptable thing, but highly conducive to the preſervation of health, ſtrength and vigour, and probably on that account one of the beſt preventatives of ſcurvy, and what, under ſimilar circumſtances, I would recommend never to be neglected. About three weeks before we arrived in India, after having been at ſea nearly three months and a half, ſymptoms of ſcurvy began to make their appearance. The recruits, who all ſlep upon the orlop-deck and had by this means eſcaped ſome ſevere attacks of fever on a former occaſion, were thoſe that now principally ſuffered from this diſeaſe. Two of them upon our arrival at Madras, on the 12th of September, were in a

very advanced ſtage of this complaint, notwithſtanding the free uſe of ſpruce-beer, wine, and a freſh diet, which was allowed them from the captain's table. The one had been in the habit of getting very often drunk, was dirty, and ill clothed; and the other had formerly suffered much from the venereal diſeaſe, which had conſiderably debilitated his conſtitution. The phænomena of this maritime ſcourge in theſe two men were ſomewhat ſtriking, but they were ſuch as I have uniformly obſerved to take place. In the drunkard, livid and copper-coloured blotches, with œdematous ſwellings of his legs, contraction of the hamſtrings, and bloated countenance, accompanied with ſpongy gums and fœtid breath, were the principal appearances. This man waited upon the midſhipmen, from whom he got the liquor, and was often found lying upon the wet deck perfectly ſenſeleſs: he never wore ſhoes nor ſtockings, and conſequently ſuffered chiefly in his extremities from cold, where the ſcorbutic ſymptoms were the moſt apparent. The other had formerly been in good circumſtances, was now therefore ſomewhat deſponding from the nature of his ſituation, and ſeldom came upon deck. —The firſt marks of the diſeaſe diſcoverable in him were from a cut, the bleeding from

which was ſtopped with difficulty, and which afterwards put on every appearance of a true ſcorbutic ulcer, inducing me now to examine into his particular ſtate and habit of body. I found his ſkin covered with petechiæ, and his ancles beginning to ſwell; his breath fœtid; his gums ſlightly affected, and bleeding when rubbed; and his countenance more than uſually ſallow. Thus we ſee in thoſe two inſtances, that although the ſcorbutic diatheſis exiſted in both to nearly the ſame degree, yet that it was modified by certain circumſtances in the production of ſymptoms; and we ſhall in another place be able to point out, that many accompanying ſymptoms of this diſeaſe remain after the diatheſis is completely removed. Of the men belonging to the ſhip who ſuffered moſt, one was a very old ſeaman, almoſt worn out in the ſervice; and the other a man who, from being a good deal employed as a taylor, led rather an inactive life, and was in the habit of getting frequently drunk.

Upon our arrival at Madras, the ſymptoms of ſcurvy in the ſhips company ſoon diſappeared by the uſe of fruit, and a freſh diet. The advanced ſtate of the ſeaſon now induced our commander to make every exertion in

landing the cargo, and in getting the ſhip ready for ſailing, in order if poſſible to make his paſſage through the China ſea. The ſhip's company were in conſequence much employed upon deck in the heat of the ſun; and diarrhœas, cholera morbus, and fevers attended with bilious ſymptoms, became very prevalent. Soon after our arrival here rice was ſerved to the people in place of their bread, which was now expended. The beef which was here daily ſent off for the uſe of the ſhip, was of the worſt quality, lean, tough, and tendinous, and very ill ſuited to the condition of the digeſtive powers of an European in ſuch a climate, and under the preſent circumſtances.—Here I muſt be allowed to examine a little into the caſe: the men, during the whole forenoon, have been hard at work in the heat of an almoſt vertical ſun, and about twelve o'clock, when its power is greateſt, they are piped to dinner; many by this time are ſo faint and exhauſted, that they are more inclined to uſe ſome fluid for the purpoſe of quenching their thirſt and to refreſh them in ſome degree, then to eat ſuch beef as has been deſcribed; after drinking a little water probably, and reſting awhile, they now perhaps begin to feel ſome deſire to eat—they indulge it, and we ſhall ſuppoſe

that they make a tolerable hearty meal—languour and heavineſs then ſucceed, with a total averſion to motion, and they would be glad to be allowed an hour's ſleep;—the boatſwain's call, however, rouſes them inſtantly upon deck—they return to their duty in the ſun within an hour from the time that they came below. The debilitated ſtomach, now deprived of that reſt of body which is abſolutely neceſſary to digeſtion in ſuch a climate, performs its functions imperfectly, and the aliment thus paſſing into the irritable bowels in an improper ſtate for their reception, a diarrhœa enſues, and if the weather is unſettled and wet, a dyſentry is for the moſt part the conſequence. Again, if at ſupper a man —in this climate, and under ſuch circumſtances as we have mentioned—is induced to eat a portion of animal food, or any thing elſe which he may have procured from the ſhore (cucumbers with vinegar for inſtance, which is a thing very commonly done), and goes to ſleep afterwards, during hot and ſultry conditions of the weather, he is ſoon awoke with great ſickneſs at ſtomach—he vomits—the vomiting continues, and is ſoon followed by gripes and frequent looſe ſtools; ſpaſms of the muſcles of the abdomen enſue, accompanied by the ſame affection of the

extremities, and ſoon forming a complete caſe of cholera morbus. In this manner have thoſe diſeaſes always ſhown themſelves in the courſe of my experience on board of ſhip. Some of thoſe who were attacked with cholera during our ſtay here were much reduced in the ſpace of three or four hours, for coldneſs of the extremities, failure of the pulſe, and the moſt violent ſpaſms, had taken place. In many of theſe caſes, had medical aſſiſtance not been at hand, the ſcene would ſoon have been cloſed. Opium in a ſolid form, with warm fomentations to the abdomen, and gentle friction of the cramped extremities, were ſuccefsful in reliveing all. In general, before I was called, the ſtomach and bowels were freely emptied, which rendered medicine for that purpoſe unneceſſary.—— This diſeaſe always began after dark, and in all proceeded from the patients having eat animal food at ſupper. The bowel complaints which prevailed here were apparently ſimple diarrhœas, and were frequently carried off by a ſingle purgative; but they in general left ſuch a degree of weakneſs, as rendered the men unfit for duty during ſeveral days; for if the were ſent upon deck in ſuch a debilitated ſtate, they almoſt always relapſed. The degree of heat was often ſo intenſe during

the time of our ſtay in this place that ſome of our men, previouſly in good health, fainted upon deck; they ſoon recovered, however, upon being carried below, and drinking a little wine and water.

For ſome time before we left Madras-roads the weather had got rather unſettled, with frequent heavy ſqualls, and rain towards the evening. On the day before we ſailed, thirty-two invalids were ſent on board from the naval hoſpital. They were ſeamen and marines who had been diſcharged from his majeſty's ſhips in India. On the evening before they came on board, they had been driven aſhore by a heavy ſquall of wind and rain in attempting to reach the ſhip, and were obliged to remain on the beach the whole night in their wet clothes. The conſequence was, that ſeveral had ſlight attacks of fever, and ſome of dyſentery, of which laſt diſeaſe two died. Theſe men were the firſt who were affected with this dreadful malady, which afterwards proved ſo diſtreſſing to us. Inflammation, and its concomitant mortification, carried off the one; and the other, during the inflammatory ſtage, from the excruciating pain of his bowels, and continual teneſmus, which it was ſo little within our

power to relieve by the means adopted, ſlipped out of his hammock undiſcovered, jumped over-board, and drownded himſelf—thus anticipating an event which would to a certainty ſoon have taken place.

After remaining a month at Madras, we ſailed on the 13th of October. At this time many of our ſhip's-company were laid up with bowel complaints, which had now begun to aſſume the dyſenteric ſhape. Upon the paſſage to Penang, or Prince of Wales's Iſland, which was about ten days' ſail, they were beginning, however, to recover conſiderably; the weather being for the moſt part regular and cool, and the ſhip clear and well aired.

During this ſhort run, I had an opportunity of obſerving the effect of attention to ſeamen, and of regular diſcipline. On the evening before we arrived at this iſland, we diſcovered a ſtrange ſail, which no information that we had obtained gave us the leaſt reaſon to ſuppoſe could be a friend. Our ſhip was immediately cleared for action; and towards dark, when the ſtranger came within hail of us, every man, now ready to engage, appeared with determined ſilence and coolneſs re-

ſolved to ſupport the conflict to the laſt. The cauſe of our alarm, however, appeared to be the Bombay frigate. The gratitude of the commander to his ſhip's crew, who to a man had acted in ſuch uniform ſteadineſs and apparent reſolution to protect the property of the Company and owners, induced him to make a very animated and ſatisfactory ſpeech upon the occaſion, which was followed by the uſual ſalutation of three cheers from the ſeamen. The Carnatic had been always, when the weather would admit, regularly exerciſed in the uſe of the great guns and ſmall arms, and probably at this period of the voyage was in no reſpect inferior to any ſhip of war.—I will here take the opportunity of aſſerting, that thoſe Indiamen which have of late been ſurrendered to the enemy without almoſt firing a ſhot have been totally neglected in point of diſcipline by their officers. All the Company's ſhips may and ought to be kept, upon every occaſion, in a ſtate little inferior to a man of war; and where it is not done, the men intruſted with the charge of them are unfit to hold ſuch a ſituation of reſponſibility.

Upon our arrival at Prince of Wales's Iſland, the labour of our people was renewed, and

the ſhip during our ſtay here was conſiderably lumbered. Frequent ſqualls and rain announced the change of the monſoon, which completely altered the nature of the prevailing diſeaſes; for almoſt in every inſtance they put on the form of dyſentery. We remained at this iſland nearly a fortnight, when we proceeded upon our paſſage through the ſtraits of Malacca, and arrived at that place about the 8th of November. The weather was getting daily more unſettled, and our people continued to be much employed upon deck, the ſhip being often obliged to anchor from an intricate navigation and light baffling winds, accompanied with intenſe heat in the day, and very heavy ſqualls and rain at night, with a degree of cold as ſenſibly felt as the heat during the preſence of the ſun. Dyſenteric affections were now becoming more and more frequent, and more and more violent in their attacks. About this time the two invalids died, who dated the commencement of their complaints from what they ſuffered at Madras; and I am now well aware, that the meaſures employed in theſe two caſes were by no means directed in a way that could afford relief. In fact, we had no regular nor ſyſtmatic plan of practice, and knew not when we erred. The diſeaſe in thoſe

belonging to the ſhip appearing now in every freſh attack with aggravated ſymptoms, ſeveral were ſoon in a ſtate which occaſioned great uncertainty as to the termination.

We remained only a few days at Malacca, and afterwards proceeded on our voyage with the honourable Company's ſhip Dublin. During the whole of our paſſage through the ſtraits of Malacca, round Borneo, and through the ſtraits of Macaſſer, the weather continued extremely unhealthy, ſultry, calm and ſuffocating in the day, and ſqually, with torrents of rain and a great degree of cold, at night. Our ſickneſs augmented in proportion, and ſeveral of the people were now added to our liſt; and others, among whom were ſome of the officers, were much indiſpoſed. What appeared to every one moſt unaccountable was the ſtate of ſickneſs on board the Carnatic, while the Dublin was entirely exempted, not having a ſingle man affected with the diſeaſe that ravaged the other ſhip.

About this time, owing to a moſt unfortunate Indiſpoſition of the ſurgeon, the whole duty of the ſhip devolved on me. We had now four officers and about thirty-five of our people laid up, moſt of whom were affected with dy-

ſenteric complaints. Such a ſcene of ſickneſs was what I found impoſſible to pay the neceſſary attention to, having, from my little experience of thoſe diſeaſes, no fixed arrangement, any nor determined plan of practice; and although the ſurgeon had been three voyages to India previous to this, yet his knowledge of the treatment of theſe complaints was ſo confined as to afford me but little ſatisfaction. I therefore requeſted the captain to procure me the aſſiſtance of the ſurgeon of the Dublin, that, by having the advice of another, I might at leaſt proceed with more confidence. This gentleman had likewiſe been ſeveral voyages to India in the ſame capacity; but I found him alſo very defective in practical information: for he reſorted to the opinion and recommendation of this author and that writer, and was as undetermined in his meaſures as myſelf, who had till now ſeen but little of the diſeaſes of a hot climate.

Towards the middle of December, however, having got clear of the ſtraits of Macaſſer, and the monſoon having thoroughly ſet in from the N. E. with fine, ſettled, and clear weather, and a ſteady and cool breeze, the ſickneſs, which the exertions of the faculty here employed were unable to relieve but

in a very inconfiderable degree, and not at all to prevent, was, almoft like a charm, removed; and from that period, if my memory does not fail me, not a fingle cafe of dyfentery appeared, and thofe who were ill made a fenfible approach every hour towards recovery, a few excepted, whofe advanced ftate of difeafe left but little hope of affording them any relief, more particularly by the irregular and unfyftematic proceedings which were had recourfe to. Ulcers, which, during the continuance of the unfettled weather, remained ftationary, or became foul and floughy, leading me to fufpect that there might be fome fcorbutic taint, now put on a clean and healing appearance, requiring little affiftance from art. I remarked in general, during the prevalence of our ficknefs, that the violence and frequency of complaints could be traced to fome remarkable feverity of the weather, or to fome great expofure of the people, which at this time was almoft unavoidable from the fhip getting under weigh and anchoring again, fometimes twice and fometimes thrice a-day. In no inftance could I obferve that the difeafe originated from infection, to which I was probably more expofed than any other individual in the fhip, and yet I retained

the moſt perfect health. By this dreadful malady we loſt, beſides the two invalids before mentioned, ſix of our own ſhip's company; of whom five were carried off by the effects of inflammation terminating in mortification, and the other died in the chronic ſtage of this diſeaſe.

I mentioned before, that, although this diſtemper was ſo prevalent on board the Carnatic, yet the Dublin was without a man ill, and under the ſame circumſtances of climate. But there were ſeveral things which tended to operate in the one inſtance, which in the other were wanting. The Carnatic's people, ſoon after their arrival at Madras, had rice ſerved inſtead of bread (to which dry food they had been accuſtomed for upwards of eight months), which brought on an irritable ſtate of the bowels, or prediſpoſition to dyſenteric affections. On board the Dublin, the ſeamen, during this time, had bread as uſual. This, adduced as a reaſon, may appear, to thoſe who have not been in the way of obſerving the effects of climate and diet combined, to have but little ſhare in the production of ſuch different conditions as we have exemplified; and ſome abſolutely deny it. But I ſhall ſoon be able to prove, from

feveral indifputable inftances, that it has a very confiderable influence in fuch an unhealthy fituation, and under fuch circumftances of labour and expofure: for a man, who has been in the habit of eating dry bifcuit, will feel a fenfible difference from immediately changing to an entire diet of boiled rice, even in regular ftates of the weather, and perfectly favourable to health; but if he is expofed to exceffive heat and hard labour, immediately upon fuch a change (perhaps during a hot and fultry forenoon), a diarrhœa coming on will ftagger his opinion, if he is inclined to think that it will be attended with no bad effects; and if at night he gets drenched in wet for four hours in addition, while at the fame time the cold begins to pinch him, the nature of his diforder, being foon changed to a dyfentery of the worft kind, will thoroughly convince him of his error; more particularly when he fees that other men, under the fame conditions of climate, but provided with their accuftomed diet of bread, fortunately efcape. I am, then, inclined to confider this alteration in diet as a predifpofing caufe of bowel-affections in a hot climate. There is not an hoftler who does not know, that a horfe which has been eating grafs is unfit to ride a long

journey, or to be expofed to a hot fun; and that, when he is intended for work, he fhould be fed with dry food, fuch as oats, hay, barley, or ftraw; and I cannot help thinking, that the comparifon here brought is a very juft one---for feamen on board of many fhips are treated little better than horfes, and labour far more.

Our commander, always ftudious to be prepared for every emergency, and conceiving that there was a probability of meeting with an enemy in our track, ordered the guns to be kept conftantly run out, and the half-ports to be fhipped; but thefe, as I remarked before, were ill calculated to preferve that warmth between decks which men who are cold and wet would require when they come below in the night to their hammocks, which are probably ill provided with bed clothes. These half-ports alfo admitted the beating rain, and kept the gun-deck, where the people flept, always wet. This pernicious circumftance was not, I believe, pointed out to the captain; otherwife I am fure that it would have been remedied: but at that time it did not ftrike me fo forcibly as it hath done fince, from having had another opportunity of obferving this neglect to operate in a manner

equally powerful in the production of thofe difeafes. The Dublin, on the contrary, had her guns houfed, and could confequently always open or bar her ports at pleafure; and what proved befides a very effential benefit at fuch a time, that fhip had her galley upon her gun-deck; both of which concurring advantages kept up that degree of warmth, that made men experience a kind of pleafure upon coming below from a cold and wet deck. Thefe, alone, I conceive to be the caufes which operated in affecting the two fhips fo differently.

After getting into the regular monfoon, and during the fhort fpace of a fortnight's paffage to China, our fhip's company had recovered almoft a perfect ftate of health, and we had only, when the fhip reached the port, about feven men upon the fick lift.

Upon our arrival at China, about the latter end of December, the furgeon died fuddenly, and the whole duty of the fhip was now to be entrufted to me. The weather in general was very temperate and agreeable during our ftay there, which was about three months, and we enjoyed during that time the moft uninterrupted good health. The Dublin,

however, had now her turn of ficknefs in a flight degree; an occurrence which confirms what I have already advanced upon the fubject of diet: for, foon after that fhip's arrival there, her people were ferved with rice in place of their bread; while our's had become habituated to that diet. This change (for I conceive it merely the change, and no fpecific bad quality in a rice diet, unlefs when ufed at times of great fatigue), made at a time of labour and expofure, which almoft always happens in harbour, will ever be found to be highly productive of difeafe. There are feveral fituations at Wampoa, where the fhips lie during a great part of the time that they fpend at China, which, within the diftance of a quarter of a mile, are as different in their degrees of health nearly as a low fwamp is to a dry mountainous fituation, and both operate in nearly the fame manner. Where we lay at this time, when the wind was from the fouthward, which it was often in the day time, we had a fine, light, and cool breeze; whereas the Dublin, and fome other fhips lying almoft immediately under a fmall hill fituated clofe to the river, had not, with the wind in this direction, the fmalleft circulation of air, befides having an intenfe heat reflected from this eminence, fo that

their people at work upon deck were almoſt ready to faint at every ſtep: theſe circumſtances, although they have never been ſo particularly noticed, yet, are by no means to be conſidered trifling; for they are not ſo in reality, as they inevitably, in every inſtance, are the cauſes of diſeaſe, as I ſhall have occaſion to obſerve more fully afterwards.

Towards the latter end of March and beginning of April, 1795, the weather again became unſettled, with great heat at times in the day, followed with heavy rain, and a conſiderable degree of cold at night, which brought on a few ſlight attacks of bowel-complaints that affected ſeveral of our people; but about this time we had got all ready for ſea, and ſoon afterwards commenced our homeward-bound voyage. In running through the China Sea we had a fair, freſh, and ſteady breeze, with moſt agreeable weather, ſo that none of thoſe diſorders became an object of ſerious medical treatment.

A few days before we left China, our cooper's mate was added to the liſt of our loſſes. He had been taken ill during the

rage of our ficknefs upon the paffage from Madras, with fome hepatic complaints, accompanied with a difordered ftate of bowels. Although mercury was employed, yet it was not, I fear, carried to the extent that could have radically removed a difeafe which was in a very confirmed ftate when it was had recourfe to. The fyptoms, therefore, increafed with various progrefs; he latterly became hectic, and died extremely emaciated.

About the beginning of May we arrived at Malacca, through the ftraits of which we paffed in company with five other Indiamen. Here the captain, with his ufual regard to the prefervation of the health of his men, and dreading a long paffage, at all events determined to be prepared againft a recurrence of difeafes in our voyage outwards, laid in a large ftock of yams, which grow at this place of a very fuperior quality. He likewife paid great attention to getting on board good water, which, from being brought off to moft of the other fhips in bulk and in open boats, was often quite brackifh. Our cafks, however, were fent afhore in country boats, which were manned with the natives, and under the direction of our gunner, who

had orders to go as far up the creek, where the water was to be filled, as he could, that he might avoid the filth and naſtineſs of the town, which was ſituated on the banks of this rivulet; by this precaution we had very excellent water brought off for our ſhip. The gunner, however, from being out ſeveral nights, and much expoſed to ſuffer from the cold and the rain, which fell very heavy at times, had a ſevere attack of dyſentery; and as the practice here had recourſe to give me ſome little idea of the moſt ſucceſsful mode of treating this diſeaſe, I ſhall ſtate the particular circumſtances. This man had a particular averſion to ſalts, and it was with difficulty that I could get him to take any of the common purgatives, ſuch as rhubarb or jalap with cream of tartar, from their occaſioning very conſiderable gripes and ſickneſs at ſtomach, and being often uncertain in their operation; I therefore gave him calomel alone as a purgative, in the form of pills, which in three or four days affected his mouth, and induced a little ſpitting. From that time the gripes and teneſmus gradually abated, his ſtools became feculent and free, thus rendering almoſt any other medicine unneceſſary, and he ſpeedily recovered. This was the firſt inſtance in

which the effects of mercury ſtruck me in a remarkable degree, Still, however, I did not employ this medicine ſo liberally as I ought to have done, and was authoriſed to do from the ſucceſs attending its uſe in this caſe; for ſoon after this event the ſhip's cook had an attack of a bowel complaint, which was treated with occaſional purgatives, and an opiate with calomel at bed-time. Under this management, the ſurgeon of the Walpole, one of the ſhips in company, happening one day to come on board the Carnatic on a viſit, I requeſted him to ſee this man: he deſired me to give him the bark in ſubſtance, with ſmall doſes of laudanum. I had already ſeen the effects of that medicine, when preſcribed by the late ſurgeon of the Carnatic. It was, however, tried; but I was ſoon convinced, by an aggravation of the ſymptoms, that I had adopted a wrong meaſure. I have mentioned theſe particulars in order to point out the great lameneſs, uncertainty, and indeciſion, in the practice of the medical men employed in the honourable Company's ſervice, to take care of the health of Britiſh ſeamen, ſo neceſſary for the ſupport of our country.

Some of the ſhips in the fleet were at this time very unhealthy, but I had only an

opportunity of coming at the knowledge of the ſtate of two, which were the Dublin and Duke of Buccleugh, Both theſe ſhips had been anchored in nearly the ſame place at Wampoa, under the influence of that riſing ground which we have before deſcribed, where their bowel-complaints firſt began to affect them; and both had a change made from bread to rice at China, which we have already been led to conceive a prediſpoſing cauſe, and it is probable was what rendered them ſo liable to ſuffer from the irregular and unpleaſant weather which now prevailed. At this time alſo the ſeamen of all the fleet were a good deal expoſed, and fatigued by anchoring, getting under weigh, and in working the ſhips in coming through the winding ſtraits of Malacca.

Our paſſage to the Cape of Good Hope was rather a tedious one; and upon our arrival in that latitude, to crown our former troubles, the ſhip loſt her rudder in a violent gale of wind. Our people were therefore in conſequence much employed upon deck, and greatly haraſſed in the management of the various machines that were made to ſteer the ſhip, which brought on ſeveral ſlight feveriſh attacks. One man who had been particularly

active, and had exerted himſelf much upon this emergency, was ſeized with enteritis, which terminated in gangrene and death. Evacuations were not, I fear, ſo freely and early employed here as they ought to have been; and I ſuſtained upon this occaſion a great loſs from our bliſtering ointment being now totally unfit for uſe. Every one on board was now put upon a quart of water a day, as it was doubtful, in our preſent condition, when we might reach a port of refreſhment. After making a ſubſtitute rudder, however, upon the plan invented by Captain Pakenham, which ſteered the ſhip extremely well, we got into St. Helena roads on the laſt day of Auguſt, being nearly a month from the time of the loſs of our rudder, and after having been almoſt five months at ſea.

Notwithſtanding ſo great a lapſe of time, during which our people were confined to a ſalt diet, yet, owing chiefly to the attention of our commander in procuring a ſufficient quantity of yams at Malacca to make a meal three times a week for almoſt three months, a few only had any ſymptoms of ſcurvy, and thoſe in a very ſlight degree: amongſt this number were the two men

who had been affected when the ſhip arrived at Madras. Theſe complaints were ſo trifling, that every one had completely recovered by the uſe of fruit in leſs then ten days, which was the time of our ſtay in this iſland for the purpoſe of making a new rudder. This was not the caſe, however, with many of the other ſhips, one of which, the Lord Macartney, had nearly thirty of her people laid up with dyſentery, ſome of whom were in a very advanced ſtage of the diſeaſe.

Our ſhip's cook, whoſe caſe I mentioned before, was, when we arrived at St. Helena, in ſo reduced a ſtate, that I had almoſt, nay completely, diſpaired of his life, as he was an old man, and had been ſo long affected with this diſorder of his bowels. He had been for ſome days previous to our reaching this iſland deprived of the quantity of wine which was daily allowed him by the captain, on account of the diminution of our ſtock; but I was now ſupplied with what quantity I might find neceſſary for him; and it was only at this critical moment that I reflected correctly upon the nature of this man's complaints---his appetite had been good, and his ſtools, though

frequent, had been fæculent and free, yet he gradually wafted and loft ftrength. I now reafoned thus: There is no defect in the organs of digeftion, no impediment to the paffage of the fæces through the inteftinal canal; but there is an obftruction to the chyle's being carried in fufficient quantity into the fyftem, the effect of the former difeafe, and proved by his loofing flefh and ftrength, and from the calomel having never affected the mouth in this cafe: therefore mercurial friction is alone to be depended upon. It was therefore begun, his ftrength was fupported by wine, and nourifhing clyfters were exhibited, as he had now, from his reduced ftate and confinement to bed, loft his appetite. In three days a flight tendernefs was felt in the mouth, he had recovered a little, and began to entertain ftrong hopes: in fix more he walked afhore, from not being able at the time of our arrival, without affiftance, to get up to ftool, or hardly even to turn himfelf in bed: and in little more than a month after he began this courfe, he was perfectly free from a diforder with which he had been affected for upwards of a year. I muft not forget to mention, in relating this remarkable cafe, that this old man was extremely fond of money, and as little inclined to take

his departure from the enjoyment of it: he had, therefore, got a ſmall inveſtment on board, which he wiſhed to diſpoſe of at St. Helena, and would truſt no one to make a bargain for him: to bring this to a good market was the great exciting cauſe that enabled him to go aſhore, which he did to the aſtoniſhment of every one on board; nor was he hurt by this exertion. He had a great liking for cheeſe, and for ſome time lived almoſt entirely upon it, declaring that he found it of great benefit to him, and the only ſolid food that agreed with him. He was a Welchman by birth.

Even now, however, I did not employ mercury, in the liberal way that this and my former ſucceſs demanded; for I ſoon after this loſt a poor invalid by dyſentery, who had never thoroughly recovered from the time of our leaving Madras: ſo that it is not the knowledge of a remedy being ſucceſsful in the removal of a diſeaſe, but the employment, and the employment of it in a proper way and to the neceſſary extent, which is to perform the cure, and make the character of the judicious practitioner.

During our ſtay at St. Helena we had every attention paid to our ſituation by the governor that the iſland could afford. The ſhip's company had freſh proviſions allowed them daily; and before we ſailed our commander procur~d as many potatoes as furniſhed a freſh meal for the people twice a week during the paſſage home. Upon leaving the iſland, twelve Dutch and French priſoners were ſent on board to be landed in England.

Soon after we put to ſea, our carpenter was laid up with a phthiſical complaint, which, upon our getting into a higher latitude, daily increaſed, and proved the cauſe of the death of an excellent mechanic. This man at the time of the loſs of our rudder was confined to his cot, recovering ſlowly from a fever, and complaint of his breaſt, and was not able to ſit up above an hour together. At the moment, however, of the report's being brought him of this accident, he ſtarted from his bed, put on a great coat, and inſtantly went down into the gunroom, where he remained till he had ſuperintended his mates in ſtopping a leak, which was diſcovered immediately after the rudder went. On the next morning he got up

ſoon after day-light, and continued for a conſiderable time upon deck to make the neceſſary preparations for conſtructing a machine to steer the ſhip. He went on without medical aſſiſtance, in the inſpection of the workmen employed in forming the ſeveral ſubſtitutes, which we tried before that of Captain Pakenham was made. Inſenſible to the exiſtence of diſeaſe, and full of his great purpoſe, he daily appeared to recover, and, when we arrived at St. Helena, conſtructed, to his infinite credit, a rudder, which in every reſpect anſwered as well as the one which we had loſt; and what is ſtill more remarkable, he finiſhed his work from dimenſions only, without a model, and ſhipped it at the firſt attempt. This buſineſs, however, being now executed, he appeared daily to ſink under a load of diſeaſe, and died, conſidering his ſphere of life, with as deſerved *eclat* as the greateſt and moſt renowned general.

About the middle of November we arrived in the river Shannon, after a paſſage of ſeven months and a half from China. Our ſhip's company were at this time in the moſt pefect health, and hardly a man had been taken ill from the time we left St.

Helena: thofe who were upon the fick lift being old chronic difeafes, the effect of another climate. The only one whofe cafe now required medical treatment was a fervant of the captain, who had been long affected with a dyfenteric complaint. This man had feveral times, in the courfe of the homeward-bound paffage, recovered a pretty good ftate of health, and has often induced me to think that he would get well: but he had hardly done his duty a month when he began to complain again. Mercury was never employed in this cafe, notwithftanding the excellent effects which I had obferved to follow its ufe in thofe inftances which I have already related; and I firmly believe, if it had been given upon this occafion, that the fatal confequences would have been prevented. He died about eight days after we arrived in Ireland.

The feverity of the weather now laid up feveral with flight feverifh complaints, which, however, required very little medical treatment, being generally removed by an emetic and fudorific draught. We remained in Ireland almoft a month, without any particular circumftance taking place which would require to be noted here. About the middle of

December we ſailed in company with two frigates, and arrived in Long-reach towards the end of the month, after a voyage of upwards of two years, having generally had on board from one hundred and ſixty to one hundred and ſeventy men, of whom, at different periods of the voyage, fifteen died: twelve of theſe belonged to the ſhip, and three were invalids whom we received at Madras.

LETTER II.

Account of Diſeaſes prevalent in the ſecond Voyage.

SIR,

ALTHOUGH I had not learned enough in the courſe of the preceding voyage to enable me to prevent ſeveral deaths, and to eſcape many an uneaſy moment during the one which I was now going to undertake; yet I had acquired ſome experience which induced me with more confidence to accept the charge of the health of a ſhip, where I had in general, upon a former occaſion, been very happy and comfortable. Accordingly, about the latter end of April I was again appointed ſurgeon of the Carnatic, deſtined for China direct.

In preparing and fitting out the ſhip for her former voyage, I had an opportunity of ſeeing the propriety and neceſſity of having

medical aſſiſtance at hand in the river, and therefore requeſted the captain to allow my aſſiſtant to join the ſhip ſoon after ſhe came afloat. I had previouſly got our ſtock of medicines ready, and now ſent them on board, giving orders at the ſame time to examine both the medicine and drug-cheſts, according to the liſt which I forwarded, that there might be none of the articles wanting, as I have mentioned to have been the caſe on our former voyage. We likewiſe on this occaſion diſcovered a deficiency, the want of which, although trifling, would have yet not a little incommoded us, had we gone to ſea without having it ſupplied.

The precaution of ſending medical aid on board was found to be a very neceſſary one; for during the ſhip's ſtay at Deptford, about ten days after ſhe came afloat, a man fell from aloft, and broke both his legs, one of which was a compound fracture. After reducing them, my aſſiſtant conveyed this poor unfortunate fellow to Guy's hoſpital, where he was left a patient. During the month of June, while the ſhip lay at Graveſend, I was informed by occaſional letters from my aſſiſtant, that he had met with ſufficient practice to occupy his time on board, the weather

being at that time very cold, confidering the feafon of the year, with frequent heavy fhowers, fo that feverifh and rheumatic complaints often occurred; and in fuch a fituation venereal affections are never wanting.

About the beginning of July I joined the fhip, and a day or two afterwards the people were paid their bounty and two months' advance. On the day before this took place, I requefted the captain to allow me to examine the ftate of the men who were on board, many of whom, from their miferable looks, ftrongly inclined me to fufpect them to be much difeafed. I was induced to think of taking that meafure, from the number that we were obliged to difcharge after we got round to Portfmouth in the former voyage. My propofal, however, was not acceded to, upon the idea that the feamen might, from its being a thing new, form fome unfavourable conclufion, and thus probably take it into their heads to leave the fhip; and at that time hands were difficult to be procured.

My conjectures refpecting the condition of fome were but too well founded; for, in two or three days after the fhip was paid, we had feveral added to our fick lift, two of

whom had ſuffered ſo much from the venereal diſeaſe that they were of little uſe to us during the whole voyage; others were apparently complaining in hopes of getting diſcharged, after having received their bounty and advance, which we found they had purpoſely given to ſome of thoſe crimps who kept them in pay, and acted as their accomplices, leſt the money ſhould be demanded of them upon finding it neceſſary to diſcharge them. I determined, however, at all events, to prevent their impoſing in another inſtance, at leaſt for ſome time to come, by endeavouring to prevail on our commander to keep them on board; all of whom he did, except one moſt filthy and uſeleſs wretch, who was diſcharged at Portſmouth. On the evening that the ſhip was paid, previous to her ſailing, two or three men contrived to make their eſcape with the money that had been given them, a practice, I fear, too general, and a kind of robbery, which ſome means ought to be taken to prevent.

On the 8th of July the ſhip ſailed from Graveſend. In the Downs we were detained nearly three weeks by contrary winds, which at times blew a very hard gale, with rain, principally from the s. w. quarter. Twice we

got half way between this road-ſtead and Portſmouth, and were as often obliged to put back. Our third attempt, however, proved ſucceſsful, and we anchored at the Mother-bank about the latter end of the month. Here again, on the evening of our arrival, five or ſix more of our ſeamen contrived to make their eſcape from the ſhip. They were ſuppoſed to have been in league with thoſe raſcally crimps, who, in the middle of the night, which was dark, had dropped a boat under the bows of the ſhip, and carried thoſe men off for the purpoſe of diſpoſing of them to ſome other ſhips. The weather, during the firſt part of our ſtay here, was rather irregular and cold, with frequent heavy ſhowers: but it latterly cleared up, and at the time of our ſailing, the ſeaſon was moſt delightful.

Towards the middle of Auguſt we left Portſmouth, all in pretty good health, having on board one hundred and forty men belonging to the ſhip, and eighteen Malay priſoners who were ſent off to the ſhip from Porcheſter caſtle, as Laſcar ſeamen, a few days before our departure, to be landed in their own country. Venereal complaints, as is generally the caſe upon leaving England, were what employed us chiefly for ſome time after

we failed; and we had alfo fome of thofe men affecting indifpofition, who had till now lived in hopes that they would thus get fent afhore, not wifhing to leave the fcene of their fraudulent practices. Uncommonly pleafant and mild weather, however, determined me to order them on deck, as none of their pretended complaints were at all likely to prevent them from affifting in the little duty that was now required of them; and, upon feeing that I was perfectly aware of their deceit, I heard nothing more of them for this time.

We were carried by a fine, frefh, fteady breeze from the mouth of the channel as far almoft as the equator, when we met with ftrong winds from the s. w. and fqually weather, which drove us upon the coaft of Africa, where we were baffled for nearly three weeks by light airs and contrary winds, without making hardly any progrefs. At laft the long-looked for s. e. trade wind reached us, and we arrived at St. Helena in company with five other Indiamen about the middle of October in the moft perfect health, not having a fingle man indifpofed from the effects of the climate.

The ceremony, or rather foolifh cuftom, being gone through as ufual upon croffing

the line, during rather cold and ſqually weather, occaſioned the indiſpoſition of ſeveral men: one in particular was ſeized with acute rheumatiſm. After bleeding him, I kept up a gentle moiſture upon his ſkin with antimonial medicines and opium, and at the ſame time carried the uſe of mercury, which was given in the form of calomel, ſo far as to bring on a ſlight ſpitting: he now reſted well without opium; the pain and ſwelling of his joints left him gradually, and in a ſhort time he returned to his duty in perfect health; neither had he in the courſe of the voyage afterwards the ſmalleſt complaint of this kind, nor any of thoſe chronic pains which ſo often ſucceed to ſuch violent acute affections. During my laſt voyage I treated our ſail maker upon the homeward-bound paſſage from St. Helena in the ſame manner, and with the ſame ſucceſs.

During the ten days of our ſtay at St. Helena, the ſtate of the weather, as is almoſt always the caſe there, was very pleaſant and healthy, from its ſituation being nearly in the midſt of the S. E. trade wind, which conſtantly prevails. One of his Majeſty's ſhips took eight of our beſt men from us before we ſailed, and five contrived to make

their efcape by feizing a boat in the night, and making for the fhore. This lofs diftreffed us fo much, that we were obliged to make application to the governor, pointing out our reduced fituation, who, in confequence, fent on board four foldiers from the ifland to affift in the duty of the fhip. Our people had frefh provifions allowed them while we remained here, and our commander carried bullocks and hogs to fea fufficient for fix days more.

About the latter end of October we took our departure from this little fpot, all in excellent health. Towards the middle of November the fhip paffed the Cape of Good Hope with a ftrong gale and wet fqually weather, which continued with little intermiffion till we arrived off the weftern coaft of New Holland, when we altered our courfe, and ftood to the northward. During the greater part of this period we had generally from fix to eight men upon the fick lift, laid up with flight feverifh and rheumatic affections, chiefly owing to cold, or to their getting wet. All, however, recovered and did extremely well, without any dangerous fymptoms appearing. Our fhip's company during the continuance of this cold weather off

the Cape, and in running down our longitude in fuch a high latitude, had the fame warm breakfaft prepared for them which I mentioned to have been fo beneficial in a former voyage; but, inftead of flour, wheat was now boiled. It would be impoffible for me to enumerate the many great advantages that accrue from this little mark of attention, to which men look forward with pleafure, and in confequence are doubly alert in the execution of their duty. At a time like this it is hardly poffible for every man to get water boiled for the purpofe of making a little tea; and when it is in the power to effect it, they are often obliged to wait probably nearly half an hour (the whole period allowed them for breakfaft); which, to a man who on the preceding night has been eight hours on a cold deck, is not a little difcouraging, and deprives him of a confiderable portion of that time which he would often employ to more advantage, and moreover, in claiming his turn to the fire, he often gets into difagreeable quarrels and difputes. A pint of water fhould therefore daily be boiled for each man in the fhip's coppers, that thofe poor fellows, when they are allowed to come below, might have their breakfaft always ready, which I am forry to fay

they are at prefent often obliged to go without: nor is this to be confidered one of the leaft of the exciting caufes of fcurvy.

As we proceeded to the northward, the climate daily became more mild; and about the middle of December we paffed a vertical fun with a frefh s. E. trade wind. We had in a fhort time to encounter the effects of thofe parts where his influence had been but a little before exerted; for the weather foon became wet and fqually, blowing extremely hard at times, with a heavy and rolling fea, from which fome of the fhips fuffered greatly in their mafts; a circumftance that in a great meafure laid the foundation of many a future difafter, which we fhall have occafion to mention in the fequel. As the fleet advanced on their voyage, the weather began to clear up a little, and on the 25th of December we entered the Straits of Floris, where in the afternoon we came to an anchor. Here it was determined to remain for a few days, that one of the fhips which had fprung her bowfprit in the late fqually weather might have an opportunity of fifhing it; and the boats of the fleet in the mean time were ordered to go and examine the courfe of this

little known paſſage, which appeared to be rather intricate and dangerous. Moſt unfortunately, on the ſecond or third day after the fleet anchored here, one of the ſhips, lying in a very ſtrong tide's way, parted from her anchor, ran on board of the diſabled ſhip, and carried her crippled bowſprit now completely away, ſo that this unlucky accident detained us for eight days longer before it was repaired. The weather during this time was in general rather hot and ſultry in the day; and ſqually, with ſometimes heavy rain, towards night. A few ſlight bowel affections were the conſequence; all of which, however yielded to repeated purgative medicines, which never failed to give relief, and often in the firſt inſtance removed the complaint.

The loſs which this ſhip ſuſtained now induced the commander to go to Amboyna, that ſhe might be able to get a new bowſprit fitted, as it was thought unſafe for her to venture into the China ſeas in her preſent ſtate. Accordingly, after fixing the ſtump of the old one in the beſt way that they could, the fleet left the ſtraits of Floris about the beginning of January 1797, and in a few days arrived at Amboyna. During the period of

our ſtay here, our people, having nothing to employ them but to provide our ſtock of water at their leiſure, and keep the ſhip clean, were conſequently ſeldom under any ſtate of expoſure or fatigue; and the complaints that occurred were ſlight, being chiefly diarrhœas, which were almoſt always removed by a ſingle purgative. No freſh proviſions were to be procured here for the ſhip's company, the officers even finding it rather difficult to provide themſelves with a ſingle freſh meal: fruit, however, was brought off in abundance. The weather ſtill continued ſomewhat unſettled; hot and ſultry at times, with frequent ſhowers in the day, which, when they occurred, tended a little to cool the air: but towards night it often blew hard in ſqualls with heavy rain.

After remaining at this iſland a month, detained by ſome unforeſeen circumſtances, the ſhips ſailed on the 3d of February, proceeding eaſtward upon their paſſage to China; and towards the latter end of the month they cleared the dangerous outlet from the Banda Sea called Pitt's Straits, where ſome of them ran conſiderable riſk of being loſt. On the evening before we were favoured with the N. E. monſoon, which happened a few

days after we got into the open ſea, it came on to blow extremely hard, and about eight o'clock all hands were called to reef topſails. During the hurry and buſtle which uſually attends this operation, more particularly at night, and in the midſt of a hard ſquall of wind and rain, a man fell from aloft upon deck, where he lay undiſcovered a conſiderable time (it was ſuppoſed about half an hour); at laſt one of the people ſtumbled upon him in the dark, and in attempting to rouſe what he called a ſleeper out of the wet, which at that time fell in torrents, he diſcovered the ſpeechleſs ſtate of this poor fellow, and called out for help. The ſufferer was carried below: upon being brought near the light the dreadful accident was perceived. I was immediately called; but had ſcarcely gone forward, when the man expired, breathing very laboriouſly. His head was opened next day, and I found the ſcull fractured along the whole extent of the frontal bone, tranſverſely, with a conſiderable portion of the internal table of that bone depreſſed, the ſituation of which ſhewed that there could have been no relief from an operation, had there been time for performing it. Under circumſtances where a ſhip is liable to ſudden changes of weather, which almoſt

always occurs at a ſmall diſtance from the coaſt, and within the tropics, upon the approach, and after the action of a vertical ſun, our commander had in general made it a rule to reduce his ſail before dark to ſuch a degree that if taken ſuddenly with a ſquall there could be little apprehenſion of accident to the maſts, and hardly any neceſſity for taking in additional reef; thus avoiding much expoſure of his people and riſk of ſerious injuries. Upon this occaſion, I believe it was the uncommonly pleaſant appearance of the evening, and the diſtance which we had got from the coaſt of New Guinea, that induced him to allow our ſails to remain as they had been through the day. This, as it is a circumſtance very materially connected with the prevention both of accidents and of ſickneſs, hath led me probably to proceed a ſtep farther than in a medical character it may be thought neceſſary that I ſhould have gone: but I muſt, notwithſtanding, take the liberty of ſtating, that there is not perhaps a point in which good conduct and precaution are ſo conſpicuous as in this; for here the navigator, having occaſion to reflect ſo often upon his ſituation, and to conſider the different conditions of weather and his quantity of canvas ſet, is

under continual anxiety not to loſe a favourable wind; and under an equal degree of apprehenſion for his maſts, which are in many inſtances immediately connected with the preſervation of the ſhip.

On the morning after this violent ſquall the wind ſprung up from N. E. and continued with little intermiſſion until we arrived at anchor in Macao-Roads on the 16th of March. Next morning we got under weigh; and on the 18th moored the ſhip at Wampoa, after a paſſage of ſeven months and eight days from England. We had now only four of our ſhip's company indiſpoſed, whoſe complaints had chiefly originated from colds. No ſymptoms of ſcurvy was at this time to be obſerved among any of our people, who, although they had been almoſt conſtantly confined to ſalt proviſions from the period of our leaving St. Helena, yet both at Floris and at Amboyna had very good opportunities of procuring fruit. From this circumſtance of exemption, I ſhould be inclined to ſuppoſe that ſcurvy may be prevented, and even cured, while the ſalt diet is continued, provided a quantity of freſh vegetables or fruit is made uſe of. This is a point ſomewhat eſſential to be aſcertained, as we ſhall have occaſion to

make ſome propoſals intimately connected with the opinion here given.

We had not been long at Wampoa, before a violent and ſudden change of weather, which commenced on the 22d of March, affected the comfort, and eſſentially the health, of almoſt every one on board. Our people, according to cuſtom, were upon their arrival allowed freſh proviſions; and rice was now ſerved inſtead of bread. I am almoſt at a loſs in this inſtance to aſſign with confidence any particular cauſe for the great degree of ſickneſs that now began to prevail on board, as ſo many upon this occaſion preſented themſelves, all probably having a ſhare. About this time we had received orders from the committee of Canton, to get the ſhip in readineſs for ſea within ſix weeks, that we might ſave our paſſage through the China Sea —a thing next to impracticable, conſidering the kind of weather and ſeaſon in which the duty was to be carried on, without the moſt eſſential injury to the health of all our ſeamen. The commanders, however, of ſome of the ſhips of larger dimenſions than the Carnatic had declared it poſſible for them to do ſo; and on the part of ours, therefore, nothing could be ſaid with apparent propriety.

Our ſhip's company were now obliged to labour almoſt worſe than ſlaves, expoſed at times to a ſultry heat, and at times drenched in wet for nearly half the day together. Fatigue alone, independent of ſuch ſtates of the weather, could not fail to be a ſufficient cauſe for the production of diſeaſe, to which it is probable our change of diet at ſuch a time greatly contributed, at leaſt in determining the kind of complaints that was to become prevalent. What likewiſe operated upon this emergency was the circumſtance of our guns being conſtantly run out; and the half-ports, that were ſhipped, from being in rather an indifferent ſtate of repair, admitting great quantities of rain, which during the violence of a ſquall at night kept beating in at the different crevices, and rendered our gun-deck very often wet, cold, and uncomfortable.

During this unhealthy period, our people were allowed, as uſual, to go up to Canton upon liberty, from which hardly a man returned that was not affected with ſome complaint of his bowels. This is a practice which is certainly founded on falſe indulgence; for the fact is, that thoſe men, inſtead of going up to get a few neceſſary articles for their homeward-bound paſſage, which they

could as eafily get fent to them on board, take this trip to get drunk, which they almoft all are during the three days of indulgence. It is related of a feaman, that, on the day on which he was to accompany his party to Canton, he happened to get fome liquor, with which he began his career before he left the fhip, and was carried up in the boat by his companions. During the three days of their abfence, it feems they kept plying this man from time to time, and at the expiration of their liberty brought him on board as fenfelefs as they carried him off. When he began to recover a little, he pofitively denied having been out of the fhip to his meffmates, and went up to the commanding officer to requeft that he would permit him to take his trip to Canton with fome men who were going up that evening, ftating that his own party had left him behind. Surely then a practice fo deftructive of health, order, and even of its own intention, ought no longer to exift.

An injury which we had fuftained in our bowfprit during the blowing weather, that I mentioned to have difabled another fhip in the fame manner, now obliged us to unfhip and land it for repair. This job engaged a

party of our people aſhore, who, from being much expoſed during the wet and ſqually weather that now prevailed, were to a man laid up with feveriſh, catarrhal, and bowel affections. Of the people on board, thoſe who were employed on deck, and conſequently more in the way of injury from the viciſſitude of the weather which now prevailed, were chiefly the ſufferers. Of thoſe at work in the hold, where they were more ſheltered, few had any complaint about this time; but theſe men were chiefly quarter-maſters, and were in general the ſtouteſt and moſt able-bodied of the ſhip's company who were appointed to that duty. During a period of two months, we were ſeldom a day without the addition of two or three to the ſick liſt; ſometimes ſix or eight were laid up; and many, who had once had a ſevere attack, and had recovered apparently a pretty good ſtate of health, being ſent to their duty, were upon the firſt expoſure, a circumſtance at this time almoſt unavoidable, attacked with greater violence than at firſt; ſo that ſuch was the ſtate of the ſeaſon and the labour upon deck, that although men had recovered and wiſhed to return to their duty, I was under the greateſt apprehenſion of allowing them; almoſt certain that in a

few days they would be reduced to a condition more dangerous than before. Being aware of this, I ought not to have been induced to deviate from what was ſtrictly to have been attended to; for, in doing ſo, ſeveral relapſed; and a foundation was then laid for an affection which proved fatal to two or three, and reduced others to a ſituation from which they ſuffered much. I was, however, abſolutely at a loſs how to act. Men were wanted to aſſiſt in carrying on the duty of the ſhip, and I was anxious to contribute all in my power towards it by allowing none to remain under my care who appeared able to work. This ſimple precaution, and I muſt inſiſt much upon it, of never allowing a man to return to his duty until he is in *every* reſpect capable of ſuſtaining the effects of any kind of weather, will be found the moſt effectual means of preſerving a ſhip in health; and, in fact, the ſpeedieſt mode of removing diſeaſe, of reducing the number of ſick, and the means of ſaving many lives: for I have in common practice obſerved that almoſt one third in ſuch ſituations relapſe, and that the ſecond attack is generally more violent and more tedious than the firſt, and leſs likely to be relieved by medical treatment.

It gave me inexpreſſible uneaſineſs to be deprived of the cordial co-operation of an officer whoſe interference might have contributed much to divert the malignant ſtroke from many immediately under his orders and management. At this time the people on board the Carnatic laboured nearly eighteen hours out of twenty-four. I entreated that they might be allowed half an hour more at dinner;—it was denied, by returning me for anſwer that the duty of the ſhip muſt be carried on. Soon after this conference, I pointed out that many of our people were found lying about the deck at night, and did not as uſual hang np their hammocks, whereby they were very liable to ſuffer from cold during the frequent ſqualls that happened, and requeſted that an officer might be ordered to ſee that every man in future went regular to bed. I know that it was the uneaſy ſtate of mind which the hurry and buſtle on board occaſioned to one of the worthieſt characters, for whom I entertain the higheſt regard and friendſhip, that dictated the reply which was given me, and placed me under the neceſſity of going round the gun and orlop-decks, after all were gone to reſt, with a view to enforce what ſhould have been done by an officer:

and I often found not a little difficulty in the execution; for the men were ſo worn out, that many fell aſleep ſitting againſt a gun, and would have remained there through the night, until rouſed for the next day's labour as ſoon as light began to dawn.

Such conduct on the part of him who had the charge of the ſhip obliged me to take the firſt opportunity of expreſſing my diſapprobation of the proceedings on board to the commander, who was at that time at Canton; and, in return, orders in writing were given to the different officers that my wiſhes ſhould be complied with in every reſpect, and that all occaſions of expoſing the people ſhould be avoided. This order was attended to with very evident advantage: for, although we had men taken ill almoſt daily, yet the number was greatly reduced upon the whole; and whether it was owing to the altered mode of treatment which was about this time adopted, or to the ſeveral attentions that were now paid, or to both, I can hardly take upon me to decide; but our complaints proved far leſs violent, and more tractable. I ſhould not have been induced to touch upon the conduct of my friend, had I not determined to excuſe no part of my proceedings, nor of any

other who may interfere with ſuch an important ſubject as the prevention of diſeaſe.

There was at this time another ſhip at China, which, in point of ſickneſs, ſuffered rather in a greater degree than the Carnatic; ſo that when the fleet ſailed from hence they had upwards of forty of their people upon the ſick liſt. The chief officer of this ſhip, a little before our departure, in hoiſting in their long boat (which even with a healthy crew is a job ſomewhat laborious), finding that the remaining weakened part of his people did not exactly anſwer his expectations in point of celerity, ordered the boat to be lowered down again, and thoſe poor wretches to exert their almoſt exhauſted ſtrength, at his pleaſure, in getting her in a ſecond time. Much has been ſaid reſpecting the treatment of ſlaves; but there is not a ſlave in the Weſt Indies, whoſe labour and, on many occaſions, harſh treatment, is equal to that of ſeamen. Is it not moſt unreaſonable, and much to be regretted, that thoſe moſt diſtinguiſhed ſupporters of our country ſhould, at the riſk of their lives, at a time when no urgent neceſſity calls for it, be obliged to labour at the diſcretion of men ſo inconſiderate and unfeeling as we have juſt inſtanced? The

behaviour of officers, therefore, is not unfrequently ſuch as calls for ſpeedy redreſs; and, as it is abſolutely eſſential to the preſervation of health, it requires to be publicly taken notice of, and pointed out in the ſtrongeſt terms. While a ſhip remains in harbour, men ought to have a limited time, during which only they ſhould be obliged to continue at work; for ſurely the life of a ſeaman is of as much conſequence to the ſtate as that of any mechanic or labourer on ſhore who has his ſtated hours of employment. In making this arrangement, it cannot be ſuppoſed that men ſhould be prevented from being at a call in caſe of any ſudden emergency.

About three weeks after we anchored at Wampoa, ſuch was the degree of ſickneſs on board, and ſuch the debilitated condition of thoſe who were able to keep the deck, that we were obliged to get fifty Chineſe to aſſiſt in carrying on the duty of the ſhip. About this time alſo the firſt of our people died of a dyſenteric complaint, and we had ſeveral others about thirty who were now upon the ſick liſt, rather in a ſtate of uncertainty as to the termination of their diſeaſe. My aſſiſtant, who, on our arrival here, was very

much indifpofed, was now utterly unable to give me the leaft help: he had been affected for fome time with fymptoms indicating a chronic difeafe of the liver, chiefly brought on by indolence and want of exercife; for, having formed higher expectations from the voyage than were realifed, he in confequence became defponding, and inclined to be negligent, and was latterly feized with this complaint, which had continued for a confiderable time before he mentioned any thing of it to me. Want of proper attention to the mercurial courfe, which was prefcribed, allowed the difeafe to make confiderable advancement, which foon arrived at that ftate which baffled all attempts to relieve him. He died about ten days before we left China.

The ftation which we had occupied for anchorage at Wampoa placed us greatly under the influence of that eminence, which I had occafion to hint at, being fo prejudicial to fome other fhips in a former voyage; for, while we lay here, from the wind being light and foutherly in the day-time, it was often fo intenfely hot, and without the fmalleft circulation of air, that I have felt a kind of faintnefs from being only about five minutes

together on deck; and we may therefore very eafily form fome idea of the condition of men employed in fuch a fituation through the whole day. During this time, another fhip at anchor, about a cable's-length below us, had a light refrefhing breeze, and remained extremely healthy; fo that we fee, by attending particularly to furrounding circumftances, it is poffible to preferve a fhip from difeafe, or at leaft to render thofe on board in fome degree comfortable in their labour, while others more negligent or thoughtlefs are fuffering. I muft here touch a little upon the fubject of noxious exhalations; what they are, or how they operate upon the human body, I could never underftand; nor do I believe that thofe men know any thing of the matter who adduce them as a caufe of difeafe. It is the different degrees of temperature alone that can or do operate morbidly, or in producing the healthy action: and it is particular modifications of it that determine to particular affections, I am, moreover, convinced that, by refting the explanation upon noxious exhaltations, as the acting caufe, men are induced to neglect the effential and real caufes; that is, the prefervation of an equal temperature, either by cloathing, choice of fituation, or by a

given ſtimulus applied to the body, equal to the required changes. Where we now lie at Wampoa, the wind, from being light, and from that quarter which could not reach the ſhip in the day, made us ſuffer greatly from heat. At night it generally ſhifted to the N. E. and blew proportionally cold upon thoſe in the greateſt extreme affected by the previous action of the ſun: and whether it blew in the direction of the river, or over a marſhy ground, the effects were in proportion to the degree of cold which it brought along with it, and our people ſuffered in a greater or leſs degree. Thus we ſee, by attending to ſuch circumſtances, we ſhall often take means to counteract unfavourable diſpoſitions of ſituation: whereas, by admitting the doctrine of exhalations, we remain ſatisfied that, although removed a little either in this direction or that, we are ſtill expoſed to the ſame cauſe. The fact, however, is, that we have, by this removal, got into a place of health and comfort, where we have in the day a free current of the ſurrounding medium to defend us from heat, thus preventing the effects of that debilitating agent; and in the night, knowing that it will be cold, and that it is this which we are ſo much in dread of we prepare our-

ſelves for it, and thus eſcape many unpleaſant attacks of diſeaſe.

On the 25th of April we got under-weigh from Wampoa, and on the 27th anchored at the Second Bar. About this time we loſt another of our people, who, having recovered completely from a firſt attack of dyſentery, relapſed, evidently from the effects of cold, being, when he returned to his duty, in rather a weak condition. After we arrived at the Second Bar, finding that my practice and ideas reſpecting the treatment of dyſentery did not prevent its fatal ravages, I requeſted the ſurgeon of the Henry Addington to take a view of our ſick. From this gentleman I received many clear, diſtinct, and accurate notions of our preſent complaints, and to him were many on board the Carnatic indebted for their future recovery. I can hardly expreſs my thanks in ſufficiently ſtrong terms for the uſeful inſtruction which I received from him: in fact, he was the only man with whom I had ever converſed, that appeared to me to poſſeſs any ſound and juſt opinions of the diſeaſes, which I had ſo often obſerved to baffle the unmeaning and irregular proceedings of almoſt every other ſurgeon who had hitherto come under my eye. His practice was active

and determined: he knew the effects of his meafures, and could, even in almoft every inftance of recent difeafe, fay when complete relief could be obtained. I was put alfo by him into a regular train of doing my bufinefs, and afterwards found the duty of the fhip, that had, to me, been almoft inceffant labour, capable of being carried on with the utmoft eafe. In a paper which that gentleman inferted, I believe, in the Gentleman's Magazine, he mentions not to have loft a man during two fucceffive voyages to India, by the difeafes of the climate. In the courfe of his laft, however, many on board the Addington died; of which it would be very fatisfactory to be informed of the caufe. I know that, from the difaftrous condition of that fhip, her people muft have fuffered greatly*.

Before I was acquainted with Mr. Liddel (for I fhall take the liberty of inferting his name) I had employed mercury in the treatment of our prevailing difeafes: but I now found that I had not carried it to the neceffary extent; nor had I any idea of what

* The deaths on board the Addington were chiefly from dyfentery.

way I was to proceed, if the difeafe continued after the mouth became affected. This was now rendered perfectly explicit, and I went on with a confidence which I had hitherto been a ftranger to. I now made it a point to affect every man's mouth as early as poffible, fometimes within two, but frequently a peculiar conftitution required three days—few longer—and in every recent affection with the moft complete fuccefs. Dofes of calomel, which I would not have ventured to give before, now became a common prefcription with me; and they were fuch only as I found neceffary to produce the defired effects, which I had hitherto failed in being able to accomplifh. In every recent dyfenteric complaint I began with twelve grains, which were repeated night and morning, generally with mercurial friction of the abdomen; thus affifting the action of my purgatives, and fometimes very effectually, till the mouth became fore. I then gave the folution of Glauber's falt or calomel occafionally, according to the affection of the mouth, if the pain or tenefmus remained troublefome; which however was feldom the cafe, being for the moft part relieved, and often removed, as foon as a gentle fpitting was induced. Previous to

this I was under ſome apprehenſion from cold, and the ſuppoſed injurious effects of mercury on the conſtitution, ſo falſely and ſtrongly inculcated by many writers: but, on the contrary, I now found that the habit was in many inſtances invigorated, and I think I can ſay in all improved, by a gentle mercurial courſe. Opium, which I was obliged to preſcribe to relieve the violent gripes during my former practice, I now very ſeldom made uſe of, latterly never, except in the chronic ſtage, wherein I have as yet not been able to fix upon any certain plan of treatment. —The people who now died were thoſe who before this alteration of practice had arrived at a very advanced ſtage of this diſeaſe.

In the treatment of fever, alſo, what few correct ideas I had of my own were clouded by the many falſe doctrines and recommendations of authors, and by none more than by that of a celebrated writer, who ſo ſtrenuouſly inculcates the early and liberal uſe of bark in the fevers of a hot climate, which he calls remittent: and although contrary to the practice with which I had been brought up, and to my own notions of the intentions of cure, yet in one inſtance, after emptying

the ſtomach and bowels, I was prevailed upon from the ſtatement of that writer, to have recourſe to the bark, which I gave both early and liberally, without waiting for a remiſſion;—but, I am convinced, with very injurious effects; for the man, a native of India, in a great meaſure owing to this improper treatment, added one to the fatal number. Another caſe I was managing in the ſame way; but the alarming condition which my patient was in conſequence ſoon reduced to, made me requeſt the advice of the ſurgeon of the Addington. The bark was now left off; calomel and the antimonial powder were given in its ſtead — of the former ſix grains, with four of the latter, every four hours; adding alſo ſome ſweet ſpirits of nitre to his drink. On the next day after the time of commencement of this alteration, this man was free from every dangerouss ſymptom; upon his mouth getting ſore, his fever left him, and he recovered rapidly without any other medicine. It is here worthy of remark, that the ſtupor and inſenſibility of the ſyſtem required this, which may appear to many a large doſe. Soon after the commencement of our ſickneſs, being deprived of the help of my aſſiſtant, I found it neceſſary, in order that

the people might be properly taken care of, to get a ſick birth erected, to which every one was removed who had the ſmalleſt affection of his bowels. In doing this I anſwered many an excellent purpoſe: here my attendants were always ready and preſent to aſſiſt every man who might be occaſionally in want of them, and to ſee that nothing improper was made uſe of: for many men, from having a tolerable appetite upon their recovering a little, were often led to indulge in the common diet of the ſhip, which ſeldom failed to bring on a return of the gripes, and often a very ſerious relapſe. I was, beſides, thus enabled to carry on the duty of the ſhip with double eaſe and ſatisfaction. I never ſuffered a man now to go upon deck to ſtool; which before they were often obliged to do, expoſed to the intenſe heat of the ſun, and ſometimes to heavy rain, until their reduced ſtrength rendered them incapable of leaving their birth. This is a circumſtance which ſhould in the very firſt inſtance be attended to and remedied, as the means of preventing many ſerious evils.

Men were alſo, by having a ſick birth, greatly out of the way of that noiſe and con-

fuſion which always prevail on board of ſhips in harbour, thereby rendering them the moſt unfit place poſſible for men affected with diſeaſe, and confined to a ſick bed.

All our convaleſcents complained that a rice diet affected their bowels; which obliged me to requeſt that our commander would procure a ſtock of biſcuit for our ſick. My wiſh was complied with, and every one who had any dyſenteric affection was allowed bread in place of rice.

At Wampoa particularly, and often at the Second Bar, the dyſenteric complaints were accompanied with catarrhal affections, which, however, ſeldom proved troubleſome. As this is a diſeaſe that never occurs but in changeable ſtates of the weather, we may therefore reaſonably infer that, from the two affections being ſo frequently combined in the ſame ſubject, a ſimilar cauſe muſt have operated in a very principal degree in the production of both. It conſequently follows, that, by leſſening the effects of ſudden viciſſitudes of weather, either by choice of ſituation, or by protection of the body, a very

principal ſtep will be made towards the prevention of this terrible malady.

Towards the middle of May two more of our people died, who had been laid up in conſequence of going to Canton, where they had, according to cuſtom, lived rather irregularly. Both of theſe men had arrived at that ſtage which rendered the effects of medicine very doubtful, before I was made acquainted with the mode of treatment which I have ſince employed with ſo much advantage and certainty of relief. To expreſs what I felt upon the loſs of the ſecond of our men, and at the ſame time the proſpect of adding to that number many more, would only be pointing out that want of firmneſs of mind which I was not till then aware that I did not poſſeſs. What chiefly gave riſe to my uneaſy ſtate was my having entertained the idea, that as many had been ſo fortunate as to go an India voyage without the loſs of a man, I might alſo by unremitting attention be able to bring my charge home in good health. Diſappointed in this, however, I was now determined that the ſervice ſhould derive all the advantage which my unlucky ſituation could afford it; and at that time propoſed to myſelf, with the firſt leiſure, to collect my obſervations, as ſome little aſſiſtance to other

men, who might want, upon their firſt ſetting out in practice, what my experience had now taught me. Having in ſeveral other inſtances alſo been a witneſs of the ſufferings of a moſt uſeful claſs of men, whoſe labours and vigilence had allowed me, during a conſiderable period of ſervice, to reſt in ſecurity and comfort, I conceived that I was in gratitude bound to contribute what I could to their health and preſervation.

My quantity of calomel and Glauber's ſalts, the only two purgatives which I was in the habit of preſcribing, and which I found beſt ſuited for common practice, were now almoſt expended; but I was fortunate in being able to get a liberal ſupply before we ſailed from hence.

On the ninth of this month, owing to the unlucky wreck of his Majeſty's ſhip Providence, and the return of her crew to China by a ſmall ſchooner that had accompanied the ſhip, I had the good fortune to get another aſſiſtant; a young gentleman to whoſe care and attention much of our future health and exemption from diſeaſe and death was owing. Three ſeamen belonging to that ſhip, who had dyſentery, we received on board, in hopes that by a ſpeedy recovery they would ſoon ſupply the place of thoſe whom we had loſt.

On the tenth we left the Second Bar in company with thirteen other Indiamen and ſome ſmall veſſels, ſeveral of whom were affected in no leſs degree than ourſelves with the prevailing diſeaſes incident to that climate, which had been ſo unfavourable to us almoſt from the time of our arrival. We had now about thirty-four of our ſhip's company laid up, chiefly with dyſenteric complaints; but there were none of them whoſe ſymptoms did not indicate a favourable termination, under the proſpect of the advantageous change by going to ſea. After we ſailed, the weather continued tolerably pleaſant for ſome time; but on the nineteenth a moſt dreadful gale of wind, here called a typhoon, attacked us, and continued to blow extremely hard for the next two days. The fleet in conſequence of this were ſeparated, and many of the ſhips in company with us ſuffered greatly in their maſts: we were fortunate, however, to meet with no accident to the ſhip, but had ſeveral of our men added to the ſick liſt, and had the progreſs towards recovery of many who were already ill, in a very conſiderable degree impeded. Finding the weather now, particularly at night, cold and moiſt, our commander, in order to ſupport the ſtrength of our much debilitated

crew (for there was not a man on board whofe looks did not indicate an indifferent ftate of health), ordered the ufual warm breakfaft to be prepared for them, which he always defired to be got ready in fuch conditions of climate, and allowed each man alfo a pint of grog at dinner: he likewife ordered the bread which we had prepared at China to be ferved in place of rice. By thefe means, and by attention not to expofe our people unneceffarily, we began at length to recover tolerably faft, and at a time too when many of the other fhips in the fleet were daily increafing their number of fick; fo that it is evident, men may by attention, even during an unfavourable feafon and an unhealthy climate, be preferved from difeafe.

During the late gale, one of the fhips that remained with us got totally difmafted, and alfo loft her rudder, and, in addition to thefe difafters (probably the caufe of them), was in a very fickly ftate. In rendering her what affiftance we could, our captain's boat's crew were one day very much expofed during the hot and fultry weather, which fucceeded to the late violent typhoon, and one of the men who had an attack of dyfentery at the Second Bar was now in confequence

feized with every fymptom of internal inflammation. He was bled freely, and the bleeding was next morning repeated. Blifters were applied to the abdomen, and calomel was pufhed to affect his mouth: but my fteps, I fear, were too tardy for fuch an acute attack; for mortification foon fucceeded, and he of courfe died. This man, a few hours before he expired, ftill retained his fenfes. I happened about this time to go forward to vifit him, and, after afking him feveral queftions, he addreffed himfelf to me in nearly the following words: "You know, Sir, that I have fuffered a great deal fince I was laft taken ill, but I have not fuffered fo much from pain, as from the thoughts of being obliged to leave my duty at fuch a time when fo many men are wanted, and the fhip is fo fickly, and the officers perhaps may think I am fkulking: but I am in hopes now, as I feel no pain, that in a day or two I fhall be able to go upon deck and affift a little." We are told that an Almighty Power was inclined to have faved the cities of Sodom and Gomorrah from deftruction, provided ten upright men were to be found therein. Doth it not then behove us to exert ourfelves to guard thofe from difeafe, among whom fuch a man as

this, and an excellent ſeaman, is to be found? The quantity of blood, which I took at twice, ſhould perhaps have been taken at the firſt moment of his complaining to me. This man paſſed a very large worm after ſymptoms of gangrene had taken place: and in ſeveral others affected with complaints of their bowels, a ſimilar circumſtance occurred. Worms, I believe, are never to be found but during a debilitated ſtate of the ſtomach or bowels; and, from the ſize of this animal, I am inclined to ſuppoſe, that this condition of the bowels muſt have exiſted in this man for ſome time previous to his being expoſed to the more immediate effects of the inflammation, which proved the cauſe of his death. I am inclined to believe this an additional proof, that my ideas of a change of diet acting as a pre-diſpoſing cauſe of diſeaſe in the ſeveral inſtances of ſickneſs which have been adduced, are well founded.

The diſaſtrous ſtate of the Boddam detained our diviſion about ten days, in order to conduct that ſhip back to Macao. We then proceeded on our voyage, in company with ſix other ſhips of the fleet that had not ſeparated from us during the late gales, and on

the 1ſt of July paſſed the iſland of Formoſa. During the next two days it blew tremendouſly hard, probably more violent than at firſt; and in this gale the Henry Addington had the misfortune to loſe her rudder likewiſe; which proved another great cauſe of detention to the ſhips in company. On the 8th, a third gale, leſs violent however than the two preceding, came on, and continued blowing freſh in ſqualls to the 11th. On the 17th we experienced a gale of greater violence than I ever was a witneſs to, which ſeparated our ſhip along with the Thames from the ſquadron. On the 19th, the weather having become more moderate, we proceeded upon our voyage without interruption. This deſirable event brightened the countenance of every man on board, which was before dejected, deſponding, and of the moſt pale and ſickly hue; and our people now ſeemed to have pleaſure in performing the duty of the ſhip. The weather during the reſt of this month continued very unſettled, with rain pouring down in torrents; and during what ſhort intervals there were, the ſun's heat became extremely ſultry and oppreſſive. The conſequence was, that the dyſenteric diſpoſition ſtill remained with us; and in ſeveral men who during this period had re-

lapſed, the diſeaſe had become confirmed, and arrived at the chronic ſtage ; which rendered our practice uncertain, and our meaſures of little avail. I particularly obſerved that medicine during this unhealthy period was very doubtful in its effects, and never followed by that relief which it produced in more healthy climates.

Soon after we left China, many of the dyſenteric affections became complicated with intermittent ſymptoms, which in all aſſumed the tertian type. In the treatment of theſe caſes I found repeated emetics, which were given upon the acceſſion of the fit, to remove the diſeaſe in almoſt every caſe; at this time, however, the mouth was affected with mercury. The bark was given in a few inſtances, but it generally aggravated the bowel complaint: in thoſe in whom the diſeaſe was uncombined this medicine was of ſervice; but its power was chiefly evident in preventing relapſes; the emetics which were exhibited upon the approach of the paroxyſm proving the principal means of ſtopping their progreſs.

About the beginning of Auguſt the weather began to aſſume a regular aſpect, with a

ſettled and ſteady breeze from the S. W. quarter, an appearance which we had not ſeen ſince the 22d of March. On the 8th of this month we entered Dampier's Straits, and continued with various progreſs to explore our way through a navigation both intricate and but little known; and on the 31ſt, after paſſing between the iſlands of Floris and Timor, we reached the Straits of Allaſs with a freſh and pleaſant breeze. At this place the commander had determined to ſtop for refreſhment, and to repair ſome damages which we had ſuſtained during the dreadful weather that we had experienced after our leaving China.

During this month we buried three of our people, whoſe complaints had arrived at that ſtate which baffled every attempt to ſave them under the circumſtances of our ſituation. Two of theſe men had been attacked with dyſentery at China, before I came to the knowledge of what I have called an almoſt certain mode of treating that diſeaſe with ſucceſs. They had returned to their duty after this illneſs; but whether owing to an imperfect cure, or to the effects of climate, or in ſome degree to both, is not altogether clear—they relapſed, however, and ſuffered much during

the late gales of wind, which in a great meaſure laid the foundation for the fatal iſſue. The third man had been ſeveral voyages to India, and had his conſtitution much injured by the climate and former ſickneſs, and alſo by irregularity. During the time of his being on board the Carnatic, he had ſeveral very ſerious fits of indiſpoſition, which he paid little attention to ward off, being often in the habit of getting drunk; and he appears to me to be the only man whoſe death could not have been prevented by active ſteps taken upon the firſt attack. He was one of thoſe that I ſhould have diſcharged, had I been allowed to examine the ſhip's company before they were paid their bounty at Graveſend.

Upon our arrival at Allaſs, we had many of our people affected with ſcorbutic ſymptoms, and a few had the diſeaſe in an advanced degree: they were chiefly men who had been previouſly weakened by former attacks of thoſe diſeaſes which had been ſo prevalent on board, and from our ſhip's company having been ſo long expoſed to a climate in an uncommon degree debilitating. It did not appear, in this inſtance, that the men who had been taking mercury were more liable to this

diſeaſe from that circumſtance: on the contrary, I obſerved that thoſe in whom the mercurial courſe had been puſhed, ſo as ſpeedily to affect the mouth, and thus give a check to the diſorder before debility was induced by it, had but in a very ſlight degree any ſymptoms of this diſeaſe; and in them the mouth was the only part wherein the ſcorbutic diſpoſition was apparent; ſo that mercury may be conſidered to have acted upon this occaſion both indirectly as a preventative by the removal of diſeaſe and conſequent debility, and directly, alſo, by its laying the foundation for an affection of the mouth, which its previous action on that part certainly appeared to favour. Two men who during the violent gales had been attacked by fever, attended with great proſtration of ſtrength, to whom I found the bark and the cordial regimen moſt uſeful, were thoſe that ſuffered in the greateſt degree from this diſeaſe. But I muſt here remark, that the ſymptoms of this fever were totally different from what commonly obtains the name of *remittent*. In this inſtance, the pulſe was feeble, the ſkin had little increaſe of heat, and the patients were almoſt ready to faint upon being raiſed erect;

and found inexpreſſible ſatisfaction from every doſe of their bark and wine, which on account of an attending diarrhœa was joined alſo with an occaſional opiate. In thoſe caſes of fever that occurred at China, wherein I gave the bark, every doſe ſeemed to aggravate the ſymptoms, and the patients expreſſed the greateſt reluctance on taking it.

At Allaſs our people were abundantly ſupplied with freſh proviſions, vegetables, and fruit, ſo that the ſymptoms of ſcurvy ſoon diſappeared in almoſt all who were indiſpoſed at the time of our arrival. Three only continued to have ſome obſtinate affections, which remained after the ſcorbutic diatheſis was apparently removed. One of theſe men had laboured under this diſeaſe in the Weſt Indies, where he told me that he had employed earth-bathing, and requeſted that I would allow him to go on ſhore for that purpoſe. I had little confidence in this remedy, for not having conſidered its principle of action; but as he ſeemed aſſured that it would be of ſervice to him, from former experience, I conſented to allow him to go: he moreover mentioned, that, if I would permit the other men who had the diſeaſe to accompany him, he would bring them on board much better.

This man's feet were cold, fomewhat œdematous, painful, and covered with livid and copper-coloured blotches; the affection of his gums and petechiæ were removed, which change was alfo brought about in the other men by the vegetable diet and fruit, one of whom was dropfical, with œdematous fwellings of his feet, legs, and thighs. It was about two days before we failed that thefe people went afhore, and under the direction of the conductor buried the affected parts for nearly half an hour in rather a moift foil. The dropfical patient was immerfed up to the fcrobiculus cordis. During the time that the affected parts were covered with earth, they faid that it felt very cold: upon getting up, they went to the fea-fide and wafhed themfelves clean, and were well dried with a warm cloth. After dreffing, they took a gentle walk, which produced a remarkable glow and increafe of fenfation in every part. When they came on board, in the evening, the guide of the party was very fenfibly better, and the reft expreffed great fatifaction, and hopes of getting well. In the courfe of the night, the man affected with the dropfical fwellings began to make water freely, from the ufe of a diuretic draught, which he had hitherto taken without effect. On the next

day they went on ſhore a ſecond time, and were buried as before; and in four days from this period, after we went to ſea, theſe men were able to move about upon deck and do a little duty, the dropſical patient being now almoſt free from his ſwellings.

The Thames, at the time of our departure from Canton River, was in a more reduced ſtate from ſickneſs than the Carnatic; and during the paſſage, hitherto having unfortunately continued to ſuffer, had loſt many of her people. Such a prevalence of diſeaſe had entirely exhauſted their ſtock of medicines, and obliged the ſurgeon to requeſt that I would ſpare him what quantity of any purgative medicine I was not likely to want. Upon this occaſion, he expreſſed the great loſs which he ſuſtained in being deprived of the aſſiſtance of calomel and the Glauber's ſalts, ſaying, that almoſt every other purgative tended in many caſes rather to aggravate the ſymptoms, or at leaſt was never ſucceeded by that relief which followed the operation of theſe cathartics.

Before we left this iſland, ſome boats arrived from the oppoſite ſhore of Sumbava, and brought us a large quantity of turtle,

which during a month of the paſſage to the Cape of Good Hope made a freſh meal daily for our ſhip's company.

On the 12th of September we ſailed from this place in tolerable health; for notwithſtanding our people had been a good deal employed in watering, ſtripping, and rigging the ſhip, yet, from the uncommonly fine and cool weather which we enjoyed during our ſtay, few had any complaint of conſequence. Our paſſage to the Cape of Good Hope was uncommonly ſpeedy, and upon the whole very pleaſant, having had a freſh ſteady breeze during the whole of the run; and on the 23rd of October we anchored in Table Bay. In the courſe of this period we had ſeveral attacked with bowel complaints; and although I had ſeen the conſequence of not puſhing the mercurial courſe in every inſtance to affect the mouth, yet I was here put off my guard by conceiving that I might in ſuch a favourable condition of the weather effect a cure by occaſional ſaline purgatives, with an opiate at bed time (as, upon the firſt attack, thoſe diſeaſes only indicated a ſlight bilious affection). I was however deceived;—they terminated in dyſentery, and, being in ſome degree confirmed before mer-

cury was had recourſe to, gave me a great deal of trouble; and when we arrived at the Cape of Good Hope I had four of the men laid up. At their own particular deſire, they were ſent on ſhore to the naval hoſpital, where two of them died: the other two were ſent on board in much the ſame ſtate a little before we ſailed, and was afterwards cured by mercury. The gentleman under whoſe charge they were placed had not at that time come to the knowledge of the effects of mercurial remedies in this diſeaſe. Almoſt conſtant confinement from the time of our arrival in China, and anxiety in the execution of my duty, had now very conſiderably injured my own ſtate of health; and like almoſt every one on board, I was pale and emaciated, and had loſt my appetite. By ſtaying a few days on ſhore, however, which I found abſolutely neceſſary, I ſoon recovered a tolerable good ſtate of health.

While we remained in Table Bay, every poſſible attention was paid to our debilitated crew by their commander: bread was baked on ſhore and ſent off to the ſhip daily, which was alſo ſupplied with mutton of the beſt quality; and, from having no-

this to fatigue them, they ſoon began to aſſume more healthy looks, and acquire part of their loſt vigour and animation.

A few days before we ſailed, the honourable Company's ſhip Cuffnels, one of the fleet that left China with us, arrived here. This ſhip had very imprudently touched no where from the time of their departure from Canton; and although they were one of the few that enjoyed a good ſtate of health at that place, yet during their paſſage they had buried upwards of forty of their people, and had as many more now ſick. The ſame ſhip loſt eighteen of her men upon the outward-bound voyage, who died of ſcurvy; and it is probable (for I have not been accurately informed) that it was the ſame diſeaſe which now ſo dreadfully ravaged her. Here, then, is an inſtance of the loſs of nearly ſixty men from the inattention and neglect of a commander to procure proper ſupplies for his ſhip: I ſay neglect, for I have been credibly told, that upon the paſſage out he had it in his power to do ſo; and actually refuſed to detain his ſhip, leſt two other Indiamen, from whom he had parted, ſhould be able to reach the China market before him. Upon the paſſage home,

he had it as eafily in his power as the commander of the Thames and Carnatic; but why it was not done, he muft be better acquainted than I am. To me it appears that fuch a man ought never to have the charge of a fhip, with whom no tie of humanity is binding; and furely, when we are almoft daily prefented with fuch calamitous events, too active and ftrict meafures cannot be taken to put a ftop in fome degree to them. It ought never to be left to the difcretion of a commander or an officer to make provifion for his fhip: he ought to have *pofitive orders* to that effect, which fhould fubject him to punifhment in cafe of neglect or inattention.

On the day before our departure from hence eight men invalided from his majefty's fhips on this ftation were fent on board as paffengers for England. At the time of our leaving Table Bay, on the 22d of November, we carried between fixty and feventy fheep to fea with us; and bread, which we had procured here, was now ferved to the people in place of rice. Every one had by this time acquired tolerable health, and had nearly eftablifhed their former ftrength and activity. We arrived at St. Helena

on the 3d of December, where we recruited our ſtock of water, and put to ſea again on the 12th. During the paſſage to England we loſt a native of India, who died of a fever. He had been ſeized in the cold weather off the Cape of Good Hope with a ſevere rheumatic affection of his joints, which reduced him greatly; from which he recovered ſo as to return to his duty, but remained weak; and ſoon after leaving St. Helena he was attacked in a ſimilar manner, and the fever carried him off. I am here alſo inclined to believe, that, had I employed mercury in this man's caſe at the time of his being affected with rheumatiſm, I ſhould have removed his complaints more completely, improved his conſtitution, and thus probably have prevented this attack of fever, which proved fatal to him.

Our paſſage to England was both very pleaſant and expeditious, and without any material circumſtance that requires to be taken notice of. On the 5th of February, 1798, we moored the ſhip in Long-reach, after a voyage of nineteen months; and, out of a complement of one hundred and ſixty men, having loſt thirteen by diſeaſe and one by

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accident. The Malay Lafcars, who were to have been landed in their own country, were brought home with us by their own confent, owing to the reduced ftate of the health of our feamen.

LETTER III.

Obſervations.

SIR,

IN the relation of the principal circumſtances, which my recollection, aſſiſted by ſome memorandums, at preſent enables me to lay before you, reſpecting my obſervations and tranſactions while employed in the honourable Company's ſea-ſervice, I have occaſionally interſperſed ſome remarks, as I thought they would be better connected with the particular ſubject which gave riſe to them: but I have here alſo, in addition to theſe, to call your attention to ſome other matters, which I have been induced to conceive ſomewhat important; and, if put in practice, will, I am aſſured, not a little contribute to the comfort and relief of many who under the preſent ſyſtem, are miſerable ſufferers.

You muſt be thoroughly acquainted with the nature of the ſituation of a ſurgeon of an Indiaman, and it will of courſe be needleſs for me to enter into a deſcription of it further than is connected with the preſent intention, which is neceſſary for the more complete elucidation of the propoſals to be made.

The pay of the ſurgeon employed in this ſervice is ſo inconſiderable, that it is not to be wondered at if he directs his attention to the ſtudy and profits of trade; and his whole object, in general, immediately upon his appointment, is bent to aſcertain in what way his *privilege* is to be beſt occupied. The making of any preparation for his more *immediate* duty is a ſecondary conſideration; and he joins his ſhip more in the character of a *trader* than a profeſſional man. In the courſe of the paſſage, his mind is entirely engroſſed with the thoughts of a good or bad market; and, inſtead of writing his journal and inſerting many uſeful remarks, he is buſily engaged in preparing his invoices and arranging his accounts. Upon the ſhip's arrival in India, he is amongſt the firſt aſhore where he remains for the ſale of his inveſtment; and the charge of the health of the Britiſh ſeamen is intruſted to a young aſ-

fiftant, who probably had juft finifhed his anatomical ftudies, and is as yet a perfect ftranger to the wants of a fick bed. Difeafe now begins to prevail; many are ferioufly indifpofed; fome die; and others are reduced to fuch a ftate, that, when the furgeon himfelf makes his appearance, upon the fhip going to fea, any affiftance that he can render is of little avail. His occupation now divided between his mercantile fpeculations and the care of the fick, renders the performance of both imperfect: but as money ufually inclines the balance, the thought of the next market predominates, and many an excellent fellow is loft to his country from the little confideration which is paid to his cafe. The man who has once engaged in a trading concern muft complete it, or elfe involve his affairs; and, during the fhip's ftay at the next port, the adventure for fale at home obliges the furgeon to commit the charge of the fick a fecond time to his affiftant, and he remains immerfed in purchafes till the fhip is ready to fail upon the homeward-bound voyage, fparing time probably once a week to take a ftep on board: and it not unfrequently happens during this lapfe of time that many a good feaman hath been committed to the grave. As the medico-mercantile man went out, fo he

comes home, visiting the sick, and having his thoughts engaged with his profits and losses; to-day writing his journal of the medical transactions, and to-morrow his waste-book and ledger. These are the men who lately applied to the Company for an increase of emolument. The picture which I have drawn I believe to be an exact one; and I know that it is not too highly coloured. It is surely then unnecessary to say, that some regulation and a considerable alteration are absolutely necessary. That the proper one would not immediately occur to you, from what I have now laid before you, I am far from supposing; but allow me, notwithstanding, to state what has offered itself to me upon this subject, and I leave it for you to judge of its merits.

The honourable Company, then, ought to consider, that they employ a surgeon, and not a merchant, for the preservation of the health of their seamen, and that his emoluments ought to arise from the exercise of his profession *alone*, to which he should be *confined*; and, until that is the case, deaths must and will be frequent in the service. Let the pay, therefore, of the man who fills this situation of trust be somewhat bettered;

and, if the general merit of thofe employed claim it, give them fomething to look forward to, which will thus retain men of experience in charge of the fick on board of thefe fhips. As the feamen is now to benefit by the furgeon, let him pay for it, and let it be done after the following manner:—the different fhips' crews are generally advanced two months' pay in India or at China, for which they are obliged to pay to the captain or purfer three months' wages in lieu of intereft, upon their arrival in England.——Let this now be done away with, and let the poor feamen have a little money without intereft; but let him pay to the furgeon at fuch a rate as would be nearly equal to this expenfe which will be about one fhilling per month. This, with a compliment of one hundred and twenty men, which is about the medium number of the crew of an Indiaman, will amount to fix pounds; and if his pay is increafed to five pounds per month, he will be amply recompenfed, and ftimulated on his own account to preferve the lives of as many as poffible; and further, having nothing now to think of but his profeffion, I doubt not but he will act with that humanity which becomes the medical character. Let the pay if his affiftants be fuch as to enable

him to mefs with the third mate—it will add a degree of refpectability to his fituation and fave many a young man from the contamination of loofe and corrupt principles.—Upon the prefent fyftem, the affiftant-furgeon, on many occafions, muft either involve himfelf to pay his mefs at a table, where his rank calls him to fit, or join in all the blackguard fcenes of a midfhipman's birth. We have now provided very handfomely for both the furgeon and his helpmate; and, it is to be hoped, to enable them to fill their feveral departments, fo as to leave no room for the leaft exculpation, fhould they fail in proper attention; and I am well perfuaded, that the advantages of fuch regulations would foon become apparent.

The firft thing which will occupy a furgeon, after his appointment, is to get his medicine-cheft fitted up before the fhip comes afloat, and he is perfonally to examine the condition of the feveral articles which are to be packed; for it to often happens, that little attention is paid to this circumftance by the druggift, who very often neglects to fend on board many of the articles that have been ordered; and many that are fent are frequently found in rather an indifferent ftate.

It will be needlefs, I believe, to adduce further evidence for the neceffity of the affiftant's joining the fhip, upon her coming afloat than the particulars mentioned in the account of my voyages, which fufficiently point out the propriety of having a medical man in the way at fuch a time of labour and expofure.

Before the people are paid their bounty and advance, the furgeon fhould receive orders to examine the ftate of every man on board, that thofe, the health of whom is likely to render them ufelefs for the ordinary kind of Eaft-India voyages, may be difcharged. Thus will he fave himfelf much future trouble, and actually increafe the effective ftrength of the fhip; and although this is a thing which is never attended to, yet I know nothing more effential towards the prefervation of a fhip in health; for during my laft voyage I had four men whofe mames were not out of the fick-lift for two months together through the whole voyage.

The furgeon has orders to vifit his fick twice a-day. This ought ftrictly to be attended to, even if he has only one man ill; for he will often difcover and prevent many

little things, by this regularity, which might in the end prove of very ſerious conſequence. During the outward-bound paſſage, he will in general have little to employ him; but upon the ſhip's arrival in India, he may begin to expect a prevalence of ſickneſs, and he is upon no account to think of quitting the ſhip to live aſhore, for it is only now that he will have an opportunity of ſhowing his diſcernment and attention. Inſtead of twice a-day, he ſhould in this climate ſee his patients regularly every four hours; firſt in the morning about ſeven o'clock, before breakfaſt; again about noon; a third time about four o'clock; and again in the evening about eight; and he will often find his preſence uſeful in taking a look round the decks between eleven and twelve o'clock at night, before he goes to bed. By adopting this latter practice, I once ſaved the life of a ſeaman at China, who had been attacked with a cholera-morbus:—he was ſeized after ſupper; every one about him was aſleep; having got out of his hammock to go to ſtool, he had found his calls ſo preſſing, that he ſat down upon deck, and continued vomiting, till at length he was ſo reduced, that he could not call upon any one to give him the aſſiſtance which he ne-

glected to requeſt in the beginning; and when I came along the deck, at my uſual hour, I found him exhauſted to the laſt degree; and he certainly would have been ſoon irrecoverable, had I not fortunately, in purſuance of my practice, happened to come at a timely moment to his relief.

The ſurgeon ſhould now have certain formulæ of medicines always ready, that he may be inſtantly able to relieve any particularly preſſing ſymptoms, which will at ſuch times be found to occur. I ſhall mention a few of thoſe that I found moſt convenient and beſt ſuited to my practice:

1. The ſolution of Glauber's ſalts with emetic tartar, to which was added ſome oil of peppermint.—2. The ſaline mixture with emetic tartar.—3. Calomel pills made with crumb of bread, and containing two grains each.—4. Small opium pills, containing three quarters of a grain of opium, with one and a half of calomel.—5. Emetics, conſiſting of a ſcruple of ipecacuanha alone; and ſome containing a ſcruple of this powder, with a grain and a half of emetic tartar.

By theſe means I was always prepared for the common run of my practice on board

ſhip; and for this neceſſary and eſſential arrangement I am indebted to a gentleman, whoſe name I have taken the liberty of mentioning in a former account. Should bowel complaints or fevers become frequent, the ſurgeon ought to have a ſick birth immediately erected, being regulated in the choice of its ſituation by the prevailing cauſe of the preſent diſeaſe; and two attendants ought to be appointed, one of whom ſhould be conſtantly with the ſick, to ſee that his orders are properly attended to with reſpect to diet and regimen, which with ſeamen will be found a very neceſſary precaution. The ſurgeon is never to truſt the exhibition of a doſe of medicine to any one but his aſſiſtant, who is to pay attention to the minuteſt part of medical preſcription: and here it will be proper to obſerve, that not a little depends upon the aſſiſtant's huſbanding the ſtock of medicines with care, being attentive never to allow a ſingle bottle to be left without being carefully ſtopped and covered; for, owing to this neglect, it not unfrequently happens, that many very valuable and indiſpenſable articles are loſt, and many a poor fellow conſequently ſuffers. No man, who has any complaint of his bowels, ſhould be allowed to go upon deck to ſtool;—in the

ſick birth, or in his own, if there are few ſick, he ought always to have a covered bucket with a little water, which the attendant ſhould be made to empty regularly: the advantage of this will appear from what I have noticed in another place. In unhealthy ſituations, and indeed on every occaſion, there is no one circumſtance which the ſurgeon will find ſo conducive to health, to the removal of diſeaſe, and the prevention of death, as never to allow a man to return to his duty, until he his perfectly recovered. I know of no maxim that ought to be more impreſſed on a ſurgeon's mind than this; and yet it is ſo little regarded, that numbers have fallen victims to its neglect. I have ſtated the above neceſſary attentions, to ſhow what is to be expected of a man who makes his duty his ſtudy; and that the neceſſity of the ſurgeon being ſo placed, as to be engaged in the way of his profeſſion *only*, may the more evidently appear.

We ſhall now examine ſome particulars relative to the ſtate of the ſhip's company, whereby it will become obvious, that ſeveral regulations for bettering their condition are much wanted. When a Indiaman comes afloat, every man who can find his way on

board is in general received, at preſent owing to the ſcarcity of hands; but, in time of peace, I underſtand that it is otherwiſe—none being then admitted, but ſeamen or able-bodied landſmen. Many of the ſhip's crews at the preſent criſis are not unfrequently found martyrs to diſeaſe, which they labour to conceal till they have received their bounty and advance, when they for the moſt part take the firſt opportunity of ſhowing it, knowing that they are now ſecure of an appointment, and are ſometimes careleſs whether they are diſcharged or not, after getting ſuch a ſum of money. Hence the propriety of the ſurgeon's previous examination.

The mode of arrangement which is adopted in paying ſeamen money, at the time of fitting out, is fraught with many improper and evil tendencies, ſome of which we have already noticed. Men are thus provided with the means of expoſing themſelves to the infection of a diſeaſe much to be dreaded; and, inſtead of purchaſing neceſſaries for the voyage, they only think of procuring liquor:—they get drunk, are always quarrelling, and often bring both themſelves and officers into very unpleaſant predicaments.—Under ſuch circumſtances, then, ſome regu-

lations may certainly be admitted. Men ought undoubtly, to have ſuch articles provided for them, as are likely in the courſe of a long voyage to render them comfortable, and to prove ſome protection to their health; and in this way ſhould their bounty and advance be paid them: for, according to the preſent ſyſtem, a man often goes to ſea without a ſingle garment belonging to him, but what he may happen to have upon his back. The purſer, then, ſhould be ſupplied with neceſſaries, contracted for by the company at a moderate and fixed price: a man ought, in this way, to have a good bed; he ſhould have ſeveral ſuits of clothes, clothes adapted for every climate; and he might be ſupplied with a ſtock of proviſions, ſuch as tea, ſugar, and tobacco, that would make his life at ſea by no means an unpleaſant one, independent of contributing in the moſt eſſential manner to his health. Thus would a ſtop, in ſome meaſure, be put to thoſe ſcenes of riot and drunkenneſs to frequently to be met with on board of ſhip; and the induſtrious tradeſman would receive what either falls into the hands of women of looſe character, or the ſpirit vender. Order and regularity would be eſtabliſhed; and men might, perhaps, from being for a time accuſtomed

to experience the ſatisfaction that would a-riſe from that mode of life, become reformed, and probably be made reſpectable members of ſociety.

By adopting theſe arrangements, a ſhip's company will in all probability leave England in perfect health, and in every reſpect well provided; and they will alſo have a ſurgeon intereſted in their welfare and preſervation, the ſtudy of which will now be his ſole occupation: they will likewiſe, I hope, arrive in India for the moſt part (probably always now, with the ordinary run of paſſages) free from diſeaſe; and it will then be neceſſary to exert ourſelves to preſerve them ſo during their ſtay in harbour. We will therefore ſuppoſe that the ſhip has arrived in Madras Roads, and I know of no difference in point of ſituation here, wherein a commander hath to exerciſe his diſcernment in the choice of anchoring ground, which is the firſt thing to be attended to upon all occaſions. After this neceſſary arrangement, then, no one ſhould be admitted on board from the ſhore, nor are ſeamen to be allowed to make any purchaſes without the ſanction of their commanding officer, as it is but too well known that their diſcretion is not to be truſted.—

Men, according to the present mode, are in general employed at work through the whole day; and often without regard to climate, are expofed to every change of weather.—As I have never feen any neceffity for this plan of proceeding, and as I know that the fame duty may be carried on, and proper regard be paid to the health of the people, I beg leave to offer the following regulations upon this head, which will apply to almoft every fituation in a hot climate. Men are called at day-light in the morning, and continue at work till about eight o'clock, when they are ordered to go to breakfaft, for which they are allowed half an hour: they return to their duty, and remain employed till between twelve and one o'clock, at which time they are piped to dinner; in the prefent climate we have before feen the impropriety of this mode of practice. Men, therefore, fhould now be allowed to leave off work for an hour and a half; and in place of dinner, each man ought to have half a pint of wine ferved him, mixed with a proportionate quantity of water (and we fhall by-and-by point out the means of procuring wine): this he will drink—it will refrefh him—and he will, perhaps, eat a bit of bread or a little rice with it, if a rice diet is ferved; but we fhall alfo

point out a mode of procuring bread, and of having that article good during the whole voyage. This little refreſhment will be found ſufficient to ſatisfy the calls of appetite, which he may feel about this time, from its being his uſual hour of dinner at ſea; and after his reſt of an hour and a half, removed alſo from the effects of the ſun's greateſt power, he returns enlivened and with vigour to his duty, and will perform more work before the evening than if he had been employed throughout the whole day; and, from his wine and water, with the bit of bread, will be doubly active and light. In the evening, when the labour and heat of the day are over, let him have his dinner after he has cleaned himſelf; and he will now eat with an appetite, and digeſt it well. Thus will be obviated that pernicious cuſtom of eating ſupper, pernicious on this account: that if a man, under the circumſtances which we have deſcribed, have eaten his dinner about twelve or one o'clock; which with us is the principal meal, it requires a great exertion of the digeſtive powers, conſequently induces a conſiderable degree of debility, which in ſuch a climate is never recovered from ſo ſoon, as to admit of animal food being again made uſe of in the evening. Hence the impropriety of the

practice muſt be evident; and its hurtful effects are alſo confirmed by experience—diarrhœa and cholera-morbus being ſo often the conſequence. By the alteration however, which we have taken the liberty of pointing out, the ſtomach, from the moderate exerciſe which we have preſcribed for it in the forenoon, hath its powers increaſed; and in the cool of the evening will be found well able both to admit and digeſt a hearty meal. Moreover, in this way do the inhabitants of almoſt every warm climate regulate their diet.

At ſuch a period as the preſent, officers ſhould be careful to have the whole deck covered with properly fitted awnings, which, I am ſorry to obſerve, is in many inſtances neglected; and theſe awnings ſhould be made of the ſtrongeſt canvas, that they may be impervious both to the ſun and rain. In fixing them, the greateſt care ſhould be paid to their being raiſed at a proper height from the deck, otherwiſe they render it hot and cloſe, and thus in a meaſure deſtroy their own intention. As every ſhip is ſupplied with a fire-engine, this machine in hot weather, when there is little wind, ſhould be employed to keep the awnings conſtantly

moiſt; a circumſtance, if attended to, that will afford great ſatisfaction. In rainy weather, a large curtain, made of the ſame quality of canvas with the awning, might be ſtretched along the outſide of the rigging that is expoſed to the wind, and fitted to the awning, which will thus effectually prevent thoſe people who are employed upon deck from ſuffering ſo much as many of them do at preſent, and enable alſo the duty of the ſhip to be carried on without interruption.

We have now regulated the diet of the people; we have given them ſtated hours for work; we have protected them from the ſun; and during hot ſtates of weather, have kept them cool, by wetting the awnings and curtain, a thing which I muſt repeat to be the means of infinite gratification; and, laſtly, we have defended them from wet and rainy weather. We muſt not, however, neglect to mention, that when there is a choice of ſituation, the commander ſhould be careful to anchor his ſhip in a place which will render the climate as regular as poſſible, and will admit of a free circulation of air from every quarter conſiſtent with the ſecurity of the ſhip. Theſe circumſtances ſhould be more

particularly attended to at Wampoa; but perhaps there may be other places where the ſame ſtrict attention is neceſſary, but none at preſent occur to me.

Some young, and not a few old, commanders may probably wiſh to know in what manner their predeceſſors and contemporaries of merit have conducted ſo ſucceſsfully the economy of their ſhips, and to have all the information in their power reſpecting the means moſt likely to preſerve the health and vigour of their crews. We have, then, gvein them healthy men, clothed them well, and provided ſeveral neceſſary comforts for them; we have appointed ſurgeons to the ſhips, who have only their duty to attend to, (and, it is to be hoped, the commander will take care that they execute it properly); for he ſhould always make it a point to muſter the ſick regularly every day, according to the ſick-liſt, Men will thus be always clean, and not tempted to feign complaints. As the ſeamen on board of Eaſt-India ſhips almoſt all ſleep upon the gun deck, it ſhould therefore be ſtudiouſly ſuited to every condition of weather. In cold and moiſt ſtates of the air, it ought never to be waſhed, but ſhould carefully be kept dry, and ſcraped clean twice a

week; and it ſhould after breakfaſt and dinner be always regularly ſwept. In waſhing the upper deck, which is generally done every morning during all kinds of weather, regard ſhould be paid in winter, or in cold latitudes, not to expoſe men at ſuch an early hour; as it might be as well performed after breakfaſt. In warm and dry ſtates of the atmoſphere, either within the tropics or during a mild ſummer ſeaſon, the gun deck ſhould be waſhed twice a week. Great attention ſhould be paid to have the ports properly fitted, ſo as to admit no rain nor water at ſea; and, when any by accident hath found its way into the ſhip, it ought to be inſtantly ſawbbed as dry as poſſible. It is a common practice, but rather an inexplicable one with regard to its effects in the preſervation of health, to ſmoke ſome ſhips occaſionally with gunpowder. Inſtead of this ineffectual method of proceeding, I would recommend, during damp and rainy weather, to ſhut all the ports, hatches, and ſcuttles, for an hour or ſo together, and to let fires be carried along the gun-deck, which will thus evaporate all moiſture, and produce that condition which is found to be ſo healthy during a dry and temperate ſtates of the air. This practice ſhould be more particularly attended to after blowing

weather, when the ſhip almoſt in every part will be obſerved to be uncommonly moiſt and chilling.

The hammocks ſhould be got up every morning before breakfaſt, and ſhould be ſpread upon the booms, or over the long-boat, where they can be expoſed to the action of the ſun. After ſqually or wet weather, the bedding, blankets, and clothing, of all the ſeamen, ſhould alſo be opened out to dry; and at the end of every three or four months, every hammock ought to be clean waſhed. —During rainy and unſettled ſtates of climate, the hammocks ought to be taken down and laſhed over the guns contiguous to the different births, where they will be out of the way of getting wet, and will admit of a free circulation of air between the decks. At ſea, many of theſe things are in general ſo regularly attended to, that it may be thought ſurpurfluous in me to have mentioned the above particulars: but I muſt obſerve, that, along with many other very eſſential regulations for the preſervation of health, they are totally neglected upon the ſhip's coming into harbour, where they are fully as neceſſary as at ſea; thus in a manner acting as if men could not be affected by the different cauſes

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of difeafe in fuch a fituation. It is chiefly on this account that we have touched fo minutely upon the fubject; for more atten tion is by far neceffary to be paid to the condition of men in harbour than on almoft any occafion at fea, where they for the moft part live regularly, have little hard duty, and are not often expofed in a great degree to the viciffitudes of weather. Particular regard ought therefore to be paid to keeping the gun-deck as clear of lumber, clean, and well aired, as if the fhip was at fea. Some men, who are perhaps wanting in method, may think this an impoffibility; but I have feen it done, and know that it can always be done with a little attention.

Almoft all feamen feel a pride in being fupplied with good, and even fine clothes, which will be found a great means of attaching them to a fhip; and they will alfo, with proper meafures, upon all occafions be even fcrupulous of their regard to be clean. As we know of nothing, therefore, that fo powerfully contributes to health in the kind of climate to which in India we are more particularly confined, I think that religious regard ought even to be paid to it, which we find to be the cafe in many warm countries; and I doubt not that this maxim is

inculcated from the neceſſity of the practice. On board of moſt ſhips, the men are generally muſtered every Sunday at ſea, at which time they are expected to appear clean; but during the reſt of the week, little attention is given to what they wear. On muſtering days, however, men ſhould not only be deſired to appear clean in their dreſs, but ſhould be obliged to bring every article of their clothes in the ſame condition: and we would beg leave to recommend that each junior officer have his appropriate diviſion of the people to attend to in this reſpect, and ſhould be made accountable for any neglect in their part, of the general order iſſued by the commander. We would, moreover, wiſh that the ſame practice be continued in harbour, where, I think, it is more neceſſary to be attended to, from the great labour and dirty employment of ſeamen during their ſtay there, than almoſt in any inſtance at ſea.

All occaſions ſhould be avoided of expoſing the people during unſettled ſtates of the weather, and eſpecially thoſe men employed in the tops, who ſhould be called down unleſs particularly wanted aloft. But when expoſure becomes unavoidable, the commander

is to fortify his people as much as he can againſt the dangerous effects of cold and wet; for example—as it often happens that men are called up in the night, during rainy and blowing weather, to reef top-ſails—after this proceſs is gone through, each man ought to be allowed a certain portion of the liquor which may happen to be uſed on board. In the cold latitudes off the Cape of Good Hope, and during ſuch weather as we have deſcribed the Carnatic to have had upon her paſſage from Madras to China in her firſt voyage, and after leaving China in the ſecond, men ſhould have that invigorating breakfaſt prepared for them which we have already lanched out ſo much in favour of, and ſhould likewiſe at dinner be allowed a little weak grog, or rather ſome wine and water. And hear it may be right to point out in what way both wine and bread are eaſily to be procured for the ſeamen of the different ſhips that viſit India, eſpecially the latter article, in quantity ſufficient for the conſumption of the whole voyage.

As the Cape of Good Hope is now likely to be retained in our poſſeſſion, wine, therefore, may be procured (I believe even at preſent) in ſuch quantity as will be perfectly

ſufficient for our purpoſe; at leaſt it may ſoon be obtained by a little encouragement given to the farmers for the cultivation of the grape. The company, then, ſhould contract for ſuch a quantity as will be adequate to the wants of their ſhips, while they happen to continue in hot weather in the country, upon their paſſage out and home; and they ſhould be ordered to touch at this place in order to take on board a ſtock proportionate to the number of their people: and orders alſo ſhould be given that it be allowed to each man, both in harbour and at any particular time of fatigue, to the extent of half a pint in the forenoon, and half a pint in the evening or at dinner. Biſcuit ſhould alſo be baked here, and ſupplied to the ſhips by contract, ſufficient to laſt them during their ſtay in the country; thus will this article of food be always in a ſound condition, and thus although in a ſmall degree, will the quantity of proviſions be reduced which is carried from the mother country, and its price probably alſo affected.

As every ſhip that touches at the Cape can carry to ſea about eighty or a hundred ſheep, which will prove ſufficient for a month's expenditure, there will then be no neceſſity,

with an ordinary paſſage from thence, to ſupply any of them with freſh proviſions at ſuch a place as Madras, where we have deſcribed the beef to be of ſo indifferent a quality; and, if this plan can be accompliſhed, I am well aſſured that it will be found in the higheſt degree conducive to health. As I am, moreover, of opinion, that ſcurvy may be prevented, and ſlight ſymptoms of this diſeaſe even cured, when men are living upon a ſalt diet, provided a ſmall quantity of fruit is made uſe of; I therefore, think that, were this point thoroughly aſcertained and eſtabliſhed, any change of diet at ſuch a critical time would be rendered unneceſſary, and perhaps many of theſe diſorders ſo deſtructive to ſeamen might be prevented. But the neceſſity of a change will not be ſo preſſing, and may even be diſpenſed with, when men have been living ſo long on freſh proviſions, as they will have been by our arrangement, after leaving the Cape of Good Hope.

It is further probable, that, if men at ſuch a place as Madras were to have ſome freſh lime-juce and ſugar added to their wine and water, a change of diet might alſo be made leſs requiſite, or perhaps not at all required.

We would likewife recommend encouragement to be given for the feeding of bullocks at the Cape of Good Hope, which are of a large breed; and the meat of them fhould be falted in the winter, and bought by contract for the ufe of the company's fhips.—From this circumftance it might happen that the expence of a chief article of food would be rendered more moderate to the labourer at home; at leaft the price of falt beef would be reduced in the purchafe for the navy. The fhips fhould ftop in Saldannah Bay in winter, where, I underftand, excellent water can be procured at that feafon; and in fummer the weather will admit of their going into Table Bay. By this plan inhabitants will be called to a part of the country which wants and will admit of high cultivation; and fhips will be perfectly fecure at every feafon, which they are by no means at prefent, by going into Falfe or Simon's Bay in winter We muft likewife mention that fhips may be fupplied at Canton, and, I am informed, at Bengal alfo, with excellent bread; at a very moderate price, if it is contracted for.

As it almoft always happens that the water on board of fhip becomes putrid and very offenfive foon after going to fea, particu-

larly if it hath been put into new caſks, or caſks that have not been properly charred, attention ſhould therefore be paid by every commander to this part of cooperage; and we ſhall here likewiſe point out a very eaſy mode of rendering this eſſential article ſweet and agreeable, which was always adopted on board the Carnatic. The water intended for the next day was brought up early the day preceding, and expoſed in a caſk with a large ſcuttle cut in the bilge; in was every now-and-then well ſtirred round, ſo as to admit the eſcape of the putrid vapour; and the next day our people had water little inferior to what they uſe in harbour.

I would here beg to requeſt that the fooliſh ceremony which is gone through upon croſſing the line be aboliſhed, as it is fraught with many very injurious and diſagreeable circumſtances; and we ſhould likewiſe wiſh that ſeamen be no longer allowed to go up to Canton upon liberty (as it is called), but that they have proper neceſſaries purchaſed for them at a ſtated price, as we have propoſed to be done at Graveſend, inſtead of intruſting them with money, which, it is well known, they never uſe with diſcretion. They can go occaſionally aſhore on one of the

iſlands contiguous to the ſhip, which being elevated and dry, will be a proper place to afford them ſufficient exerciſe and amuſement.

Every man, as we have already recommended, ſhould have water boiled for his tea, both in the morning and afternoon, in one of the ſhip's coppers.

Accidents occur leſs frequently on board a ſhip than might be expected from the nature of a ſeaman's employment; and the greateſt number that have happened during my ſervice have been from negligence, and want of attention to a very ſimple circumſtance, "that of not properly ſecuring the gun-deck hatches at night," whereby men, in the dark, and very often when in liquor, by falling through, have thus fractured ſometimes a leg, ſometimes an arm, or a collar-bone, and have frequently received very ſerious injuries and wounds of the head, and often bruiſes, from which they have been long in recovering. Theſe hatches ought therefore to be covered with gratings, as upon the upper deck, that a free circulation of air may be admited below, when people are

ſleeping there; and theſe gratings ſhould be ſo ſecured by hinges, that, when opened, they may be a protection to the hatchway on each ſide; and thus, if a man ſtumbles, when this plan is adopted, he will fall againſt the perpendicular railing.

We have now only to requeſt, that the company will be pleaſed to give ſuch orders, reſpecting the ſeamen employed in their ſervice, as will prevent commanders and officers from acts of oppreſſion; but although we have ſtated ſome remarkable inſtances of ſuch conduct, yet I would wiſh to perſuade myſelf that, in general, they are rather unfrequent; and it is to be hoped that ſuch arrangements will be made, as to allow thoſe poor fellows ſtated hours for labour.

The company ſhould, moreover, give poſitive orders to the commanders never to remain at ſea above three months without a ſupply of freſh proviſions or fruit; for notwithſtanding ſhips have continued at ſea for a much larger period without any ſymptoms of ſcurvy, yet the diſpoſition to this diſeaſe is almoſt always about that time beginning to form; and we cannot, in every inſtance, too ſtrongly enjoin the moſt ſtrict attention

to be paid to the proper ſupport of a vigorous conſtitution, for we ſhall often heartily wiſh to do it when it is not in our power to effect it.

'Adjuva, deſunt multa.'

LETTER IV.

Medical Remarks.

SIR,

I HAVE reſerved a particular account of my practice in the treatment of thoſe diſeaſes more immediately incident to an Eaſt-India voyage for a ſeparate relation, and ſhall now, therefore, ſtate to you in what I have been ſucceſsful, wherein it appears to me that I have erred, and the inferences, which the apparent evidence on both ſides hath induced me to draw, ſo as at this time to regulate my conduct in the proſecution of a curative proceſs.

In the firſt place, then, as dyſentery hath been the moſt frequent diſeaſe in my voyages, and the one wherein I have had the beſt opportunities for obſervation, I ſhall point out my progreſs through thoſe diffe-

rent periods that have led to the condition which I now find myfelf in with regard to the management of it, and fhall afterwards mention what few remarks I have been able to make upon the other complaints generally prevalent on board of fhip.

When I began my practical career, the ideas which I entertained refpecting the nature of this diforder muft have been extremely limitted and inaccurate, like almoft every other young man upon his outfet; and from few or no opportunities of feeing it treated, I had hitherto thought but little on the fubject; fo that an opinion, right or wrong, I was no judge of—could be fwayed either this way or that—be eafily prevailed upon to employ medicines diametrically oppofite in their effects; and not knowing what intentions I had to anfwer, knew not whether to profecute the courfe which I had entered with—alter it—or forefee, from the condition of my patient, that medical exertion would prove of little avail, in whatever way directed. Unluckily for me, under my prefent circumftances, I happened to be placed with a man, who, although he had been feveral voyages intrufted with the charge of the health of one of the company's fhips, yet

had not in a ſingle inſtance reduced his practice to any degree of ſimplicity capable of affording me that ſatisfactory evidence which partly experience, and partly the uſeful leſſons of another man, have ſince taught me.

During my firſt voyage in the Carnatic, whilſt my predeceſſor was ſurgeon of the ſhip, the firſt bowel affection that came under our treatment was an old chronic dyſentery, with which the ſhip's cook was troubled at Portſmouth: occaſional doſes of rhubarb were given, and, on the intermediate days, the bark in ſubſtance with an opiate. As I was not in the habit at that time of noting down very particularly the various changes that took place, I can only ſtate, from recollection, that this man conſtantly complained that the bark occaſioned great heavineſs, and ſometimes ſickneſs at ſtomach, and, unleſs when combined with the opiate, of its increaſing his calls to ſtool. About this time, however, he was ſeized, as were ſeveral others (ſee the account of that voyage), with an eryſipelatous affection of his arm; and if I rightly remember, the complaint of his bowels was now completely removed. From this time he recovered, and continued to do his

duty until our arrival at that ſickly period of the paſſage between Madras and China, when he was again attacked with his old complaint, and in the ſame account will be ſeen the particulars of my ſucceſs in the treatment.

While the ſhip continued at Madras affections of the bowels became very frequent, the management of which was entirely left to me. They fortunately happened, however, to be chiefly diarrhœas, and were for the moſt part removed by a purgative or two, conjoined with an opiate at bed-time. Upon leaving Madras, and between this place and China, the features of our prevailing diſeaſes were ſoon changed, and aſſumed the dyſenteric aſpect; and it was now that the lameneſs of our treatment became conſpicuous by the loſs of ſeven men, who died by the effects of inflammation, terminating in mortification: the beſt proof poſſible, without entering into a minute detail, that our intentions of cure were either not diligently carried into execution; or were founded upon wrong principles. I have mentioned, in another paper, that neither the ſurgeon nor myſelf were aware of what changes were to be effected by our proceedings; for it

would often happen, probably, after purſuing the purgative plan for a few days (that is, by giving a purgative in the morning and an opiate at night) that without any ſatisfactory reaſon, we would begin with the bark conjoined with opiates in one caſe, antimonials or ipecacuanha with opiates in another; and, if the gripes, and teneſmus became more urgent, a variety of aſtringent and cordial remedies, ſuch as the cordial confection in a chalk mixture with laudanum, were made trial of, giving perhaps at the ſame time an occaſional purgative, which was ſometimes calomel, ſometimes a doſe of Glauber's or Rochelle ſalts, with ſenna or manna; and the tinctura ſacra, lenitive electuary with jalap, or the oleum ricini, were alſo preſcribed. It is true that many recovered: but I do not recollect a ſingle caſe in this gentleman's practice which was treated according to any ſyſtem: he ſimply gave out that this particular caſe was well addapted for that particular plan of treatment, without having any general intention to anſwer that I was informed of.

Upon the unhappy indiſpoſition of the ſurgeon of our own ſhip, the ſurgeon of the Dublin came on board to my aſſiſtance. The

only difference which I found in the practice of theſe two gentlemen was, that the latter was not ſo fond of varying his preſcriptions, and confined himſelf chiefly to the Glauber's ſalt and Caſtor-oil; but he was alſo an advocate for the bark, and the aſtringent plan occaſionally. A favourable change of the weather, however, produced a ſudden alteration in our condition of health, and did more in a few days than we could have effected in as many weeks, ſo that almoſt every man on board was ſoon in a promiſing ſituation.

After the charge of the ſick had devolved upon me during our paſſage home, it is evident, from my hiſtory of that voyage, that I knew as little as the medical men abovementioned: I moreover related, that I found another ſurgeon on board the Walpole, as defective in knowledge as myſelf: and now that I am but too well aſſured that there are many in the ſervice of the ſame deſcription, I ſhall ſurely be excuſed for attempting to point out to them an improvement and facility of practice.

Fortunately for every one on board the Carnatic, we continued tolerably healthy du-

ring the reft of the voyage. Off the Cape of Good Hope we loft one man, who died of internal inflammation, an evident proof that fufficiently fpeedy and correct meafures were not employed for his relief, In the detail of feveral cafes in my account of that voyage, the good effects of mercury are made very confpicuous: but ftill I had not penetration enough to determine me to ufe it in other cafes that proved fatal by trufting to other means.

Soon after my arrival in England, "Clarke on the Difeafes of a hot Climate," fell into my hands; and, being then but a late publication, I was induced to give into his principal opinions, and adopt his recommendations of practice, more particularly as his high encomiums upon the effects of mercury in dyfentery called to my recollection how I had been fuccefsful by the ufe of the fame remedy. I accordingly began my next voyage, determined in every cafe of dyfentery to employ mercury: but I was not made aware by this book how neceffary it was to affect the mouth within a given period, to avert the fatal ftroke in many cafes. In the fever called remittent, which hath generally been faid to be fo fatal in hot countries, I had

in like manner refolved, after evacuating the ftomach and bowels, to ufe the bark in fubftance early and liberally, not aware—nor does the above author appear to be fo—that it is the operation of the emetic and purgative remedies which hath given the credit to the early adminiftration of the bark; for this medicine, although powerful in preventing the return of this and other fevers, yet will never be found to cure any of this type when prefent.

Upon the outward bound paffage of my fecond voyage, feveral flight cafes of dyfentery occured, wherein I regulated my practice fo as to remove any occafional fevere gripes, by purging, and in the intermediate days employed fuch remedies as it appeared to me would fupport the ftrength of my patient, and give tone to the ftomach and bowels. I was fuccefsful, becaufe I had little to do, the difeafe being unattended by any violent fymptoms, and happening under tolerable favourable circumftances of climate. I was, however, proud of my practice and fuppofed cures, and began to conceive myfelf invincible. On the firft day I gave the folution of Glauber's falts, which in general operated freely by ftool, and at bed-time

an opiate with calomel was exhibited. If the gripes and tenefmus were not urgent on the next day, I gave pills compofed of ipecacuanha, calomel, and opium, at an interval of three hours. The third generally obliged me to repeat my purgative, which was fometimes the Caftor-oil, The gripes and tenefmus were again relieved, and the fourth day, admitted of my pills a fecond time. Very often the next purgative on the fifth day carried off the difeafe, or, a diarrhœa being induced, continued moderate under the ufe of the pills, and the patients got well, without the mouth, if I recollect, being affected in any inftance.

Thus we got to China after rather a long paffage, without the lofs of any of our people by difeafe. But here a fcene was foon opened, which convinced me that my ideas were by no means correct. The practice which I had adopted upon the paffage to that place I now began to diviate from (the ufual confequence of acting without principle); and, in one or two cafes I tried the effects of calomel and opium combined, in expectation of effectually relieving the gripes, and alfo of keeping the bowels open, hoping in this way the fooner to effect a cure. I gave

theſe medicines, in the proportion of three grains of the former to a quarter of a grain of the latter, every three hours; but the reſult was very different from what I expected; this formula having operated, as if an opiate alone had been given, no ſenſible influence being perceivable from the calomel. The conſequence was, that this improper treatment, and loſs of the two or three firſt days, which ſhould have been better employed allowed an impending inflammation to take place, which ended in the death of one of our people. Diſeaſe was now daily increaſing, and becoming in many inſtances more violent: my curative indications, which I was formerly ſo elate with, began to fail me; they were not ſufficiently active for the preſent aggravated ſymptoms; and my doſes of medicines were often ineffectual, ſoon convincing me that my meaſures were not at all applicable; and it was not till I met with the gentleman whoſe name I have thought proper to mention, that I was put into the train which I afterwards followed up with ſo much ſucceſs; and, as I have had no reaſon to alter the ſeveral ideas, which Mr. Liddel pointed out to me reſpecting the nature of dyſentery, I ſhall now take an opportunity of explaining them.

I was now informed that I muſt expect to find this diſeaſe preſent itſelf in various ſhapes, and in different degrees, but that they were all at ſuch an unhealthy period to be equally dreaded—the ſimple attack often more than the combined, becauſe in the latter there is in general ſo much alarm as to induce the ſurgeon to employ powerful means for the removal: but in the former, the appearances are often ſo deceitful as to lull the practitioner into a fatal ſecurity, until the diſeaſe becomes confirmed, and the ſucceſs of the treatment very uncertain. I was therefore recommended to purge freely, and to carry mercury with ſpeed in every inſtance to affect the mouth, and was alſo deſired to keep up the ſoreneſs of the gums, until a diarrhœa was brought on, which I was told to conſider as the only certain criterion of the removal of ſtrictures, or the immediate dyſenteric cauſe, Thus far were my ideas, reſpecting the nature and management of this diſeaſe, ſimplified; and, being put into a proper train, a little reaſoning ſoon afforded me that ſatisfactory evidence which I had hitherto ſo much experienced the want of, and enabled me to proceed with determined confidence in the execution of my meaſures. That the proximate cauſe of pure and un-

combined dyſentery will be beſt explained by the doctrine of ſtricture in ſome portion or portions of the inteſtinal canal, is apparent from the phænomena occurring in a caſe of recent diſeaſe; for as ſoon as ſtricture is formed, there takes place an increaſed action of the lower parts of the guts, inducing almoſt continual teneſmus; and as no fæces can paſs the conſtricted parts, the power of which is for a time ſuſpended—nothing is diſcharged by ſtool but mucus, which ſoon becomes mixed with blood from the increaſed determination to the parts of increaſed action. This ſtricture may be contracted to a greater or leſs degree, thus at one time perhaps admitting ſome fæces to paſs; while, at another, not the leaſt appearance of fæculent matter is to be ſeen for many days; and it is probable that the gripes and teneſmus are proportioned to the degree of the ſtricture, The very accurate deſcription given by Mr. Home, in his "Treatiſe on the Stricture of the Urethra," will apply with great exactneſs to a caſe of ſimple and uncombined dyſentery; morbid irritability operating in both inſtances to lay the foundation for the proximate cauſe of this conſtriction, which Dr. Cullen hath already hinted at in his inveſtigation of the diſeaſe in queſtion, but hath

not fully explained. This ſtate of conſtriction is occaſioned in the one inſtance—ſometimes by gonorrhœa, and ſometimes by too frequent and to long protracted connexions with the ſex; and in the ~~order~~ other moſt generally by whatever the ſtomach may propel in an improper ſtate for the bowels to receive under certain conditions of climate, inducing diarrhœa, morbid irritability, and ſtricture. Was it neceſſary to reaſon further, we could account for all the various ſtates that are found in the latter ſtages of this diſeaſe; but taking the caſe of ſtricture in the urethra as an example, all the phænomena of a dyſenteric affection may be very accurately anticipated: but the indiſputable evidence of diſſection is the moſt convincing proof of the doctrine which we would here wiſh to eſtabliſh, and which ſhould be conſequently kept in view by the practitioner.

Having thus, with apparent ſimplicity and ſatisfaction, conſiſtent alſo with the principles of the animal body, aſcertained the immediate cauſe of all the different conditions that may be expected from the preſence and permanence of ſtricture—and being thus made acquainted in like manner with the exact ſtate of the inteſtine at this part or parts,

which is the caufe of all the fymptoms—we will of courfe, while the difeafe is but recent or fpafmodic, and it is yet eafily within our power to reftore the natural action before a morbid condition renders it perhaps impoffible, make ufe of the moft active meafures to effect this purpofe. We find therefore, at the conftricted parts a want of action: reftore this then, in whatever ftage of the difeafe, and an effential ftep will be made towards a cure: it is even probable that very extenfive ulcerations might gradually be healed up. But we find that there is an over determination of blood to both the contracted and excited parts, that is, to thofe parts below the ftricture or ftrictures, which, without the utmoft vigilance, may terminate in an inflammation in any ftage of the difeafe, where all our efforts will be baffled irrecoverably: we are, for that reafon, not to lofe a moment in the employment of active meafures. Repeated purgatives have be found the only kind of medicine that is at all fuited to the cure of this affection, although we might not *à priori* be directed to the ufe of fuch means; and thofe whofe action is the moft permanent, are found to be the moft effectual, and are the remedies that fhould be had recourfe to. Nor is external friction of the

abdomen to be neglected in uncombined cafes, as it hath been difcovered a powerful mode of exciting the regular action of the bowels. But we have alfo an over determination to conquer, a circumftance from which much is to be feared; and I know of no medicine which is more certainly likely to effect this laft intention than mercury; but it muft be pufhed, that its effects may be exerted with fpeed upon the fyftem, otherwife our practice anfwers no purpofe. As I can therefore find a mercurial preparation perfectly adapted to anfwer my firft intention, I employed this remedy for both reafons, and give it the preference. Calomel purgatives, then (fuppofe it a cafe of recent difeafe), are to be adminiftered; and as they have to act upon a contracted part not poffeffed of its ufual irritability, I order a larger dofe than in any other inftance, and this muft be proportioned to the violence of the fymptoms. In my practice I gave from eight to twelve grains of this medicine, generally the latter dofe, that I might be fure of having my object effected; for although it might occafion two or three ftools more than I intended, yet no bad effects ever refulted from it. Not one dofe however, probably not two, perhaps not three, not even more, will be found fuffi-

cient; ſo that calomel is, therefore, to be given doſe after doſe without interruption; that is, night and morning, accompanied by mercurial friction of the abdomen, which will be found greatly to aſſiſt both our views, until the mouth becomes ſore. It will probably now happen that our intentions are completely anſwered; for, at the time of the mouths getting ſore, the diſeaſe very often yields: ſo that mercury muſt be poſſeſſed of a powerfully antiſpaſmodic or relaxing quality.——Diarrhœa now enſues, and continues generally for a longer or ſhorter period, according to the violence of the diſeaſe; and here we muſt particularly direct that this ſymptom be not interfered with, but rather encouraged by an occaſional purgative, either Glauber's ſalts or rhubarb, as being the moſt effectual means of reſtoring an equal action of the bowels, which may now be conſidered to be ſomewhat irregular in their functions, and to require its uſe. Calomel will hardly be further requiſite; but friction of the abdomen may be continued, if the affection of the mouth will admit of it. This degree of excitment upon the ſurface of the abdomen will ſtimulate the mouths of the lacteals, and will be found a moſt powerful means of reſtoring ſtrength by a more free

abſorption of nouriſhment. No animal food is during this time, to be made uſe of, for it will often bring on a return of every ſymptom that had been relieved by the previous operation of a purgative; and it is not until the diarrhœa hath diſappeared, that this article of diet can be admitted without a riſk of inducing a relapſe, of which it is oftener the cauſe than almoſt any other circumſtance. Hence the neceſſity of a ſick birth and proper attendants; for whoever has had to do with ſeamen, muſt know they have no prudence.

The practice which we have here recommended is propoſed to be employed in a ſimple caſe of dyſentery—that is an affection wherein have taken place frequent and ſlimy ſtools often ſtreaked with blood, and attended with tenesſmus, ſometimes with gripes, ſometimes not, and a loſs of appetite. But a more violent caſe often occurs, wherein every mark of inflammation threatens the patient; and ſymptoms may probably exiſt, which are but too ſtrong a proof of its having already taken place. In this inſtance, therefore, the practice recommended by Gordon, in the treatment of puerperal fever ſhould be ſtrictly followed up. You are to bleed not to

moderate the ſymptoms, but at once to cure them, elſe you will certainly loſe your patient: you are at the ſame time to purge freely with calomel, apply a bliſter to the abdomen) a powerful means after, in the removal of the proximate cauſe of dyſentery), and by mercurial friction along the inſide of the thighs, you muſt get the mouth ſore as ſoon as you can for the removal of ſtricture; and both in this and in every other caſe of dyſenteric affection, if poſſible, in the courſe of the ſecond or third day, after your patient applies to you. You are not to think of loſing time with opium, independent of the miſchief that it will occaſion; for it is a falſe idea, that the patient requires a reſpite from purging: he will not be debilitated ſo much from the operation of twelve grains of calomel, as he will from a ſingle ſlimy ſtool, which invariably follows the uſe of opium.

It will often happen, that, although the mouth is affected with mercury, yet the diſeaſe continues, the gripes being perhaps the only ſymptom thus alleviated. Here the purgative plan is ſtill to be followed up, by giving, as the teneſmus may require, the ſolution of Glauber's ſalt or calomel, according to the affection of the mouth, till a diar-

rhœa enſues, when we may conclude with aſſurance that the action of the conſtricted part is reſtored. The violence of the diarrhœa will in general be proportioned to the violence of the previous ſtricture; for it appears to be a law in the œconomy of living bodies, that, if the action of a part is ſuſpended for a time, it hath for the moſt part its powers either increaſed or irregular, upon again being enabled to perform its functions, increaſed perhaps in proportion to the degree of ſuſpenſion, and more or leſs irregular according to its degree of power obtained, provided no loſs of ſtructure hath been the conſequence of its former condition; in which caſe, that loſs muſt be reſtored before the organiſation can be complete. I ſhall now conclude my obſervations on this diſeaſe by what practical remarks I have been enabled to make, in the courſe of rather an extenſive field, for aſcertaining ſome points of conſequence.

From the many inſtances of this diſeaſe that have come under my care, and the different means that I have employed in my own practice for its removal, I am inclined to aſſert, that none will be found ſo efficacious as mercury; and, the ſooner the mouth

is affected, while purging is had recourſe to at the ſame time, the greater will be the certainty of a ſpeedy and permanent cure.—Calomel is the form which I prefer, as anſwering the intention both of a mercurial, and being the purgative moſt permanent in its effects of any which I have ever tried. It will be found, however, not to agree with ſome conſtitutions; in which caſe I generally give the neutral ſalts, as they operate with little or no griping, and endeavour to affect the ſyſtem as early as I poſſibly can by mercurial friction, carrying the ſoreneſs of the mouth to an extent proportioned to the violence of the ſymptoms, which is kept up till the diſeaſe is removed, and the patient's health and ſtrength are nearly re-eſtabliſhed, which will ſpeedily take place even under the affection of the mouth. This is alſo the only means that I know of the moſt effectually to prevent a relapſe, ſo frequent under any other mode of treatment, and even after a mercurial courſe, if it is not continued for the time ſpecified.

I am inclined to aſſert, that this diſeaſe is never produced from infection, notwithſtanding the high authority, which ſanctions a contrary opinion; for I have had many op-

portunities of ſeeing it in all its ſtages, and in ſituations the moſt favourable to the communication of contagion, but never could, in a ſingle inſtance, trace the diſeaſe to that ſource.

On board of ſhip, it is probably neceſſary that the idea of infection ſhould be inculcated; becauſe by that means, more ſtrict attention will be paid to cleanlineſs both by the officers and men, which in no diſeaſe is more neceſſary than in this. It is alſo particularly requiſite, that the commander and officers be made acquainted with the dangerous influence of the climate or the ſeaſon by the ſurgeon, and ſtrictly enjoined to guard thoſe immediately under them, as much as is conſiſtent with the neceſſary duty of the ſhip, from its hurtful effects; prevention being at all times more eaſy than cure.

I believe that this diſeaſe never becomes epidemic, unleſs in unhealthy ſituations and ſeaſons; and then that it is in almoſt every inſtance the effect of imprudent or unavoidable expoſure; in proportion to which, and to the reſiſting powers of the body at the time, the degree of diſeaſe is more or leſs violent.

I am perfuaded, that, if men are a long time confined to the common fea diet, any confiderable alteration made in the mode of living—as from bifcuit to rice—in a climate, or during a feafon when this difeafe is likely to make his appearance, will greatly operate upon the conftitution, and powerfully favour the exciting caufes of it. It ought therefore to be ftrongly inculcated, that no change of diet can be made fuddenly, without confiderable rifk, to men in a climate to which they are unaccuftomed, and who, in the way of their duty, are unavoidably expofed to the viciffitudes of weather. This circumftance, fo injurious in its effects on health, is very little attended to.

What renders dyfentery fo frequently epidemic, rather than any other difeafe of the body, is the great irritability induced by diet in the parts affected, which confequently renders them more liable to be deranged by being fo eafily acted upon by the prevailing influence of the fituation or feafon.

When once this difeafe is brought on, there is no caufe which fo greatly aggravates the fymptoms, or which in my practice hath fo frequently produced relapfes, as animal

food in a folid ftate. The patient's health ought, therefore, to be perfectly re-eftablifhed before he is allowed to eat a fingle morfel, and then it fhould be in fmall quantities, In this difeafe no principal meal fhould be employed, as the organs of digeftion and the courfe of the inteftinal canal are always too much debilitated and deranged to be capable of converting into chyle a large quantity of food of any kind. Small quantities then muft only be given at a time, and repeated as often as the patient may feel the calls of appetite.

If folid animal food be made ufe of in this difeafe, during its digeftion it greatly increafes the heat of the body to the feel of the patient, and ftill more to that of the byftander. It produces great heavinefs, a fenfe of uneafinefs, and an increafed depreffion of ftrength in the patient, while it remains in the ftomach; and, when it paffes into the inteftines, fevere gripes are foon excited; and, if there be any tendency to inflammation, it is invariably called into action, unlefs evacuation of the bowels be inftantly had recourfe to.

As the action of a difeafed part tends often to derange it more and more, unlefs

the affection proceeds from debility alone; ſo I have oftener than once ſeen very violent relapſes enſue from men being allowed to move about too much, tho conſiderably advanced in the convaleſcent ſtate.

Would nauſeating doſes of emetics, if given in this diſeaſe, act in conjuction with mercury? Would they render its effects more powerful? Nauſea produces coſtiveneſs—ſo does the mercurial action, by determining powerfully to the ſurface. Nauſea renders the pulſe ſlower, and diminiſhes the action of the moving fibre, but does not induce debility. Its uſe, therefore, in the removal of the proximate cauſe of this diſeaſe, may be conſidered ſome what ambiguous; and in thoſe caſes, wherein I have tried it, I was not ſenſible of its good effects. Nauſeating medicines appear to produce a more equable circulation, and to diminiſh any increaſed flow to a particular part; but probably their effects ought to be longer continued, and more conſtant than is generally adopted in practice. A more or leſs powerful operation is to be expected from mercury according to the affection of the mouth.

In the diſeaſe which we are now treating of, if a moderate doſe of calomel, ſuch as we

have recommended, be given at a time when the gripes and tenefmus are violent, inftead of increafing the number of calls to ftool, the evacuations are rendered more free and lefs frequent.

The ufual termination of a recent dyfentery is a diarrhœa, which fhould be carefully looked after; for it very often happens that a practitioner hath nothing further to do than pay attention to the quantity and quality of the ingefta. The diarrhœa is only to be moderated by a very gentle purgative of rhubarb, or the neutral falts. No aftringent remedy is even to be thought of, as mercury anfwers every intention in that refpect. After a diarrhœa is induced, very fmall dofes of medicine will be found to operate by ftool.

There is often, in chronic ftates of dyfentery, much difficulty in affecting the mouth, even although mercury be employed both externally and internally; but, till this takes place, the patient can never be pronounced to be out of danger, and the difeafe may always be expected to increafe. In this condition of the affection, fmall dofes of medicine are only required to produce evacuation by ftool.

As climate determines the degree of violence in the ſymptoms of this diſeaſe, ſo nothing operates more powerfully in promoting the intentions of cure. In ſeaſons, therefore, when this diſorder becomes epidemic, a medical man will often be baffled in his moſt ſtrenuous and beſt-directed plans to forward a recovery, while, during a favourable ſtate of the weather, inactive remedies are almoſt always attended by the beſt effects. The difficulty of being able to bring about a favourable change in the chronic ſtage of this diſorder, during an unhealthy condition of climate, will appear more plain, when we obſerve the ſlow progreſs made in other ulcers, which, under the beſt care and treatment, remain ſtationary.

When dyſentery hath arrived at what is called the chronic ſtate, no plan of cure can be truſted to, for all will upon occaſion fail, even in the hands of the moſt attentive; ſo that rather an unfavourable prognoſis may be given, unleſs when the circumſtances of ſituation are particularly ſuited. In no diſeaſe, therefore, is it more neceſſary to produce a ſpeedy termination in the beginning, and we have endeavoured to lay down rules to that effect.

Upon a ſudden change of the weather in hot climates, you are almoſt always to expect dyſenteric attacks; and the firſt bowel complaint that occurs ſhould alarm you.

Fevers are ſaid to be more fatal in warm climates than any other diſorder. It will not, however, appear in the account of my voyages to have been the caſe; and the few opportunities which my ſervice hath given me of aſcertaining with accuracy a certain mode of treatment, make me ſpeak with the leſs confidence. Since I was appointed to the ſtation which I now hold, my plan of practice has always been the mercurial, and I have hitherto been ſucceſsful. In the firſt inſtance I evacuated the ſtomach with an emetic compoſed of ipecacuanha and emetic tartar (for I never give thoſe medicines ſingly upon a firſt attack; but not truſting to the uncertainty of their operation by ſtool, I exhibit from four to ſix grains of calomel made into pills which never fail to produce the full intention. I then ordered from four to ſix grains of the ſame preparation to be taken night and morning, which generally occaſion three or four ſtools; and this is continued, unleſs the feveriſh ſymptoms diſappear, till the mouth

becomes affected; when the ſymptoms have thus been for the moſt part removed.

In the intermittent fevers which have occured here, and which have always aſſumed the tertian type, I have followed the ſame practice, and generally exhibit alſo an emetic upon the approach of the fit.

It muſt, however, be obſerved, that theſe fevers, both remittent and intermittent, have been but ſlight. I am, notwithſtanding, inclined to think, that the ſame practice, ſomewhat more active, would be equally ſucceſsful in more violent caſes; and in which the calomel might be combined with antimonial preparation. In my practice the operation of the calomel, always occaſioned hot evacuations, which ſenſation continued till the feveriſh ſymptoms were removed; when the natural feeling returned. The patient never complained of being weakened by theſe evacuations; and by particular attention to their diet, none of them relapſed. The caſes thus treated were the ſeapoys about the factory,* and the ſeamen, laſcars, and ſeapoys, who were ſent to the hoſpital under my charge from the Company's ſhips which bring

* At Buſſora.

the monthly packet. I recommended the ſame practice to the ſurgeon of his Majeſty's ſhip Trincomalé, which happened to arrive here at rather an unhealthy period, and had a great many of her people affected with fevers hepatic complaints. This gentleman followed it up attentively, and with univerſal ſucceſs and ſatisfaction, having failed in many inſtances before by the employment of the bark.

Emetic tartar ſhould never be given alone in a hot climate, from the great uncertainty of its operation, as an emetic; for it will be often found, although given with much attention, not to occaſion the leaſt ſickneſs at ſtomach, and thus to paſs by ſtool without your intention being at all anſwered; again, in other caſes, its effects are ſometimes ſo violent as to require opium to reſtrain them. When it is combined however with ipecacuanha, I have always derived the full effects of an emetic; but I never truſt to its purgative operation, as I am always in the habit of exhibiting calomel with that view.

Under irregular intermittent ſymptoms, a phyſician may for the moſt part ſuſpect internal diſeaſe, and this is the moſt effectu-

ally to be removed by mercury. In fuch a cafe the bark will never be found of any fervice, and will often do harm. As foon, however, as the mouth is made fore by mercury, all fymptoms of difeafe are in general upon the decline, and in many inftances are immediately removed.——The mercury fhould be continued proportionally long with the previous difeafe; otherwife, upon the mouth's getting well, you may expect a return of the complaint only to be removed by again having recourfe to that remedy. The difeafe, which I have moft frequently met with accompanying intermittent fymptoms, hath been an affection of the liver. It will often happen, notwithftanding the mouth is affected, that the attacks of fever ftill continue; but here we may fufpect fome other concomitant difeafe, and the medicine fhould be continued if the mouth is but flightly affected. I continue my dofes of calomel, and increafe the forenefs a little; if much, I give fome other gentle purgative. I never think of exhibiting the bark. Thus hath my former experience, and what I have acquired here, modified my practice in the treatment of remittent and intermittent fevers.

Cholera morbus, in its attacks, kills quickly, unlefs medical affiftance be immediately called. We feldom (perhaps never) find this diforder prevail unlefs during hot and fultry ftates of the weather; and it is in general proportioned in violence to the degree of fuch unhealthy conditions, which, by affecting the digeftive powers, confiderably impair their ftrength, and render them almoft totally unfit to perform the office of affimilating even a fmall quantity of folid animal food, which the prefent ftate of the ftomach feems averfe to by craving for fomething of lefs difficult digeftion, generally of a fluid nature, or fomewhat ftimulant, that may call its powers into action. We fhall fuppofe, by way of example, that this craving for fluid is indulged according to individual circumftances; for the moft part, foon afterwards, provided the body be at reft, a little inclination for folid food begins, if it fhould happen to be about the hour of meals; this is fatisfied; but forgetting the previoufly debilitated ftate of the ftomach, it is alfo too often exceeded, and charged with matter very ill fuited for its prefent condition to act upon: the digeftive organ having now more to perform than its powers fo much weakened by climate, can accomplifh,

great reſtleſſneſs and a ſenſe of uneaſineſs, with an increaſe of depreſſion of ſtrength, take place during the time of its remaining in the ſtomach, which is now becoming more and more irritable, with inclination to reject its contents; the ſame irritability and tendency to evacuation are now communicated to the inteſtines, which are by this time loaded with a crude and indigeſted maſs the cauſe of their diſorder; vomiting and purging now enſue, with every ſymptom of what is called the cholera; and the degree of irritation now induced is ſuch, that, even after the ſtomach and inteſtines have evacuted the offending matter, the moſt ſimple fluids cannot be retained; and, unleſs medical aid is employed, irritabily, increaſed debility, and it ſpaſm, affect the whole ſyſtem, and in a few hours every part ſeems unable to perform its functions in the ſmalleſt degree, although the organization remains perfectly entire, but in a ſtate of exhauſtion. It may happen that this condition is induced by improper food taken at any meal; but it hath always in my practice occured from eating animal food at ſupper, under the influence of the climate in which we have mentioned it to be a prevalent diſeaſe.

During the action of vomiting, great quantities of bile are always evacuated, which hath been ſuppoſed to be of a more acrid quality than natural. This is mere conjecture, and, from many attending circumſtance, ſeems to be by no means true. As it is, however, an idea which hath been entertained by men of eminence, and leads to a fallacy in practiſe, it will be neceſſary to ſtate ſome of the facts which militate againſt this opinion.

The ſame circumſtance, then, of an increaſed ſecretion of bile, takes place in ſea-ſickneſs; but no one hath ever attempted to advance that the bile in this inſtance is diſeaſed, probably from its not effecting the inteſtines. This is eaſily accounted for: The remote cauſe applied only affects the ſtate of the ſtomach; in cholera both the ſtomach and inteſtines are affected by the remote cauſes. The bile then thrown out is a conſequence of the ſickneſs, exactly in the ſame way in which it is the conſequence of the agitation of a ſhip at ſea, and is not at all to be taken into the account further than as a mere accident in the attack; for, if an opiate be given ſo as to remove the irritability of ſtomach, no more bile appears.—

Thoſe who proceed upon the idea of a redundancy of bile requiring evacuation, will both loſe much time, ſo precious in this diſſeaſe, and render the employment of the means of relief precarious; which, had they been uſed earlier, would have been attended with almoſt certain ſucceſs.

There are, therefore, two principal intentions only to be kept in view in the cure of this diſeaſe, which are, *Firſt*, the evacuation of the digeſted matter which may be lodged in the ſtomach and bowels; and *Second*, the removal of irritability, which may be conſidered as the cauſe of any ſymptoms afterwards exiſting. In general, the firſt is anſwered before medical aid is called; and, ſhould that be the caſe, to quiet the irritable ſtate of the ſtomach and bowels is then the only indication to be fulfilled. The accidental ſymptoms that occur are alway cured by a removal of the primary affection. The chief of theſe are ſpaſms of the muſcles of the abdomen and extremities, which, as they are always very diſtreſſing, ſhould never be neglected. Opium will be found the only medicine that any dependence can be placed upon; and that nauſeates leaſt in the form of pills, which ſhould always be made ſoft,

that their intention may be the more quickly anſwered by an eaſy ſolution in the ſtomach. As ſoon as this medicine begins to exert its influence upon the irritated ſtomach, the vomiting and purging ceaſe, which are ſoon followed by a relief from ſpaſm. But, although this takes place, it will be proper that this diſtreſſing affection be attended to at the firſt moment; warm fomentation of the abdomen, therefore, with gentle friction of the extremities, will be found to give great relief; and if a ſmall quantity of vinegar be added to the fomentation, it will prove very refreſhing to the patient. I have never found it neceſſary to give opium by clyſter, that given by the mouth completely fulfilling my intentions. As ſoon as the ſtomach will retain it, wine and water ſhould be allowed for drink in ſmall quantities.

In general, where this diſeaſe is moſt prevalent, the atmoſphere is very ſultry and oppreſſive: great care, therefore ſhould be taken that the air about the patient be cool and in circulation, which may eaſily be effected by ſprinkling all around him with vinegar, and keeping the air in motion with a fan or cloth. When the patient is ſomewhat compoſed, he ought to be ſhifted, and

placed in a dry and comfortable bed, covered with clothes which are the leaſt apt to conduct heat, as he will generally be found to be ſomewhat in want of this neceſſary ſupport of life. As coſtiveneſs is very apt to ſucceed to an affection of this kind, attention ſhould be paid to the ſtate of the bowels, till they are again able, of themſelves, to perform their proper functions; and during this time the diet ſhould be light, ſomewhat ſtimulating, and carefully regulated. Perhaps a light decoction of the bark may alſo be found to be of ſervice; but a portion of wine is generally more acceptable, and I think, as effectual. Such are my ideas of this diſeaſe, and ſuch hath been my mode of treating it; and in every caſe that hath occured to me, with the greateſt ſucceſs.

Hepatitis often prevails at a time when dyſentery is epidemic; yet it appears to require a different modification of the cauſes exiſting to produce it. For inſtance, a man, who may probably have been previouſly relaxed in a ſmall degree by heat, will, upon expoſure to cold alone (more eſpecially if the cold has been applied near to the ſeat of the diſeaſe), be liable to hepatitis. Should however, the degree of relaxation,

by previous heat, be very confiderable under certain circumftances of diet; and fhould the body be thus expofed to cold and wet, and that perhaps for fome length of time; an affection of the bowels will be almoft to a certainty the confequence; and it may happen that fymptoms of difeafed liver will be a concomitant of the bowel complaint.

The treatment of this difeafe, in the cafes wherein I have had an opportunity of obferving it, was always tedious and uncertain, unlefs where early recourfe was had to mercury; but, when this remedy was ufed, my moft fanguine expectations were anfwered by a fpeedy reftoration of health. When this medicine, however, was not ufed fo as to induce a confiderable affection of the mouth, or not employed as fully as would be done in the generality of venereal cafes, the difeafe almoft always recurred and proved fatal; nor have I ever feen any other plan of treatment that was attended with the fmalleft benefit. Other medicines may be ufed with a view of palliating occafional fymptoms; but mercury alone fhould be trufted to for a radical cure. Active inflammation occurring upon the firft attack, will require plentiful bleeding, bliftering, faline draughts, with eme-

tic tartar, and a low diet; in a word the antiphlogiſtic regimen ſhould be employed. But mercury ſhould at the ſame time be carried to affect the mouth; for no active inflamed ſtate of this viſcus occurs in a hot climate, that does not leave ſuch a condition, as is alone to be cured by mercury; and before this remedy begins to exert its influence, the active ſtate of the previouſly inflamed parts is now ſuch as to admit of its being employed with advantage.

As much hath been lately ſaid reſpecting the effects of the nitrous acid in this diſeaſe, I ſhall inſert an extract of a letter which I received from a ſurgeon upon the Bombay eſtabliſhment, and which will place it (in ſome degree) in the light in which it ought to be viewed. "I have to thank you for the very excellent account which you have given me of the effects of the nitrous acid, and your conſequent advice to me not to touch it; It appears to me, from trial, to be a very dangerous medicine: and had I not uſed it on myſelf, from the reſpect which I entertained for its author, I might have been tempted to truſt to it in practice."—This medicine, I am well perſuaded, will never remove a diſeaſed ſtate of any part,

and ſhould only be looked upon in the light of a very uſeful tonic.

Solid animal food ought never to be uſed while there is the leaſt reaſon to ſuppoſe that any remains of the diſeaſe exiſts: for the great flow of blood ſent in conſequence to the liver, will not fail to rouſe it into action; and thus, probably, by one falſe ſtep, undo the work of many days, perhaps weeks. Whatever food is taken ſhould be light and in ſmall quantities.

Scurvy, even at this day, continues to make dreadfully fatal ravages, notwithſtanding the correct ideas that are entertained of its nature. At preſent I have little to ſtate in addition to what I have occaſionally noticed on this head in our different relations. The principal part of the prevention will ever be found to depend upon the conduct of commanders and officers to their ſeveral crews in regard to diet, cleanlineſs, cloathing, and the avoiding of expoſure to debilitating cauſes, by being attentive upon all occaſions to ſupport their ſtrength and ſpirits, and to diffuſe all that ſatisfaction and comfort which the nature of their ſituations will admit; for it will often happen that, although ſhips are

equal periods of time at ſea, yet one will be found almoſt entirely exempted, while another hath this diſeaſe on board to a conſiderable degree; and I know of no better criterion to judge of the conduct of thoſe in the management of them.

A ſhip ſhould never go to ſea without a ſtock of lime-juce, as it will be found the moſt pleaſant remedy, and certainly the moſt effectual one. It would not appear to me, that the eſſence of ſpruce, which is now ſo commonly carried to ſea, is poſſeſſed of any power of preventing the attacks of this diſeaſe, and ought only to be conſidered as an agreeable beverage, and as conſtituting a little variety in the ſameneſs of a ſea diet.

Several concomitant ſymptoms, ſuch as rhematic affections and dropſical ſwellings, will be found to remain after the ſcorbutic diatheſis is removed, and ſhould be treated in the ſame manner as former experience may be ſhown to be moſt effectual in theſe diſorders.

Lues venerea and gonorrhea are now ſo well underſtood, and the treatment of them ſo fully explained, that I do not conceive it

neceſſary for me to ſay any thing upon the ſubject. Some ideas reſpecting the particular nature of theſe two diſeaſes have lately preſented themſelves to my reflection; but the want, as yet, of ſufficient evidence prevents my communicating them through this medium.

I have thus touched as fully upon the nature of the prevailing diſeaſes that occurred in my voyages, as the extent of my experience will admit, or the importance of the ſubject ſeems to demand; and hope, although many deaths muſt ſtill happen, conſidering the imperfect ſtate of medical practice, yet that ſome of my remarks may tend to ſave the lives of a few. Perhaps the plan which I have purſued, others of more extended abilities may be ſtimulated to follow and improve.

I ſhall here likewiſe add what my obſervations hath enabled me to ſtate reſpecting the quantity of the principal medicines which ought to be prepared for an India voyage. The Glauber's ſalts ſhould be conſidered as a chief article; and being the moſt general and beſt adapted purgative for ſhip practice, ought to be carried to ſea in greater quan-

tity, than is commonly done. In a ſhip, the complement of which is about 160 men, not leſs than a hundred weight and a half will be found neceſſary. Of calomel, which is now aſcertained to be a moſt uſeful medicine, not leſs than three pounds ſhould be carried to ſea. Freſh catharides, carefully bottled up, ſhould be occaſionally mixed with an ointment of ordinary conſiſtence, as baſilicon, and employed inſtead of the common bliſtering ointment, which is often found completely uſeleſs before half the voyage is over. I have not ſeen any ſituation wherein the quantity of bark, which is recommended to be prepared for an India voyage, is at all neceſſary; perhaps by the different and more effectual practice now employed in fever, not rendering at this time ſo neceſſary. Dulcified ſpirit of nitre, as it makes a very pleaſant and beneficial addition to the drink of patients affected with the diſeaſes of a hot climate, ſhould be provided in larger quantity than uſual: not leſs than a quart ſhould be laid in. With regard to other medicines which are for the moſt part packed up for ſhip uſe, the uſual quantities will be found perfectly ſufficient: and as a ſurgeon ſeldom finds much variety of practice here, the more he confines his ſtock to ar-

ticles of eſtabliſhed and real utility, the greater quantity of theſe will he be able to furniſh himſelf with, as he is only allowed a certain ſum for the ſupply of his medicine cheſt. Not leſs than twenty-four-dozen of wine ſhould be allowed on the account of the ſick; as alſo a plentiful ſupply of rice for gruel and portable ſoup, as a moſt uſeful article of diet, than which nothing is more wanted at ſea for men labouring under diſeaſe. No ſhips ought to be without a quantity of lime-juice on board, which, if not required medicinally, will be thankfully received by the ſeamen towards the cloſe of the paſſage.

When further experience hath enabled me to increaſe or to confirm any points that appear to me applicable to the preſent ſubject, it will afford me great ſatisfaction to embrace the earlieſt opportunity of communication.— In the mean time, I feel happy in aſſuring you that, with true deference and reſpect,

I am, Sir,

Very obediently your's

JOHN MILNE.

P. S. The dull ſameneſs, and perhaps, in many inſtances, incorrectneſs of expreſſion, which muſt ſtrike you in the peruſal of theſe

papers, will prove a convincing evidence that I am but a young and little experienced writer. In profecuting the plan, however, which I have laid down for myfelf, improvement is the principal object; and I fhall endeavour to make my next more worthy of your approbation.

Extract of a letter, which I intended to have written you upon my arrival in England, at the conclufion of my laft voyage, but which was prevented by fome intervening circumftances.

" The condition of moft of the Company's fhips at prefent is fuch in the harbours of India, as to render them the moft unfit fituation poffible for men to be confined to, who are labouring under difeafe, and fuch difeafes as prevail in that climate.——At China I experienced this in all its force, and many other furgeons muft have done the fame; for it is almoft impoffible to avoid ficknefs while lying there."

As a matter, therefore, of the greateft moment to the prefervation of the lives of our feamen, I would requeft to be permitted to point out the propriety of having fome place

near Wampoa, where men who are attacked with the diſeaſes of the climate can be ſent to.

An hoſpital boat would be the place beſt ſuited for that purpoſe, and afford men every comfort that could be found in an hoſpital aſhore (but it is doubtful whether the Chineſe would allow it to be erected): and, for the ſuperintendence of this department, another ſurgeon ſhould be added to the Canton eſtabliſhment, who ought to be a man well verſed in the diſeaſes of the country.

THE END.

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No. 27, Bow-Street, Covent-Garden.